Nina Pawlicki,
Charlotte Perschmann,
Ammon Budde

DesignBuild_Joint perspectives

DesignBuild Reflect

DesignBuild_ Joint perspectives

Sto Stiftung

Architektur

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DesignBuild_
Joint perspectives

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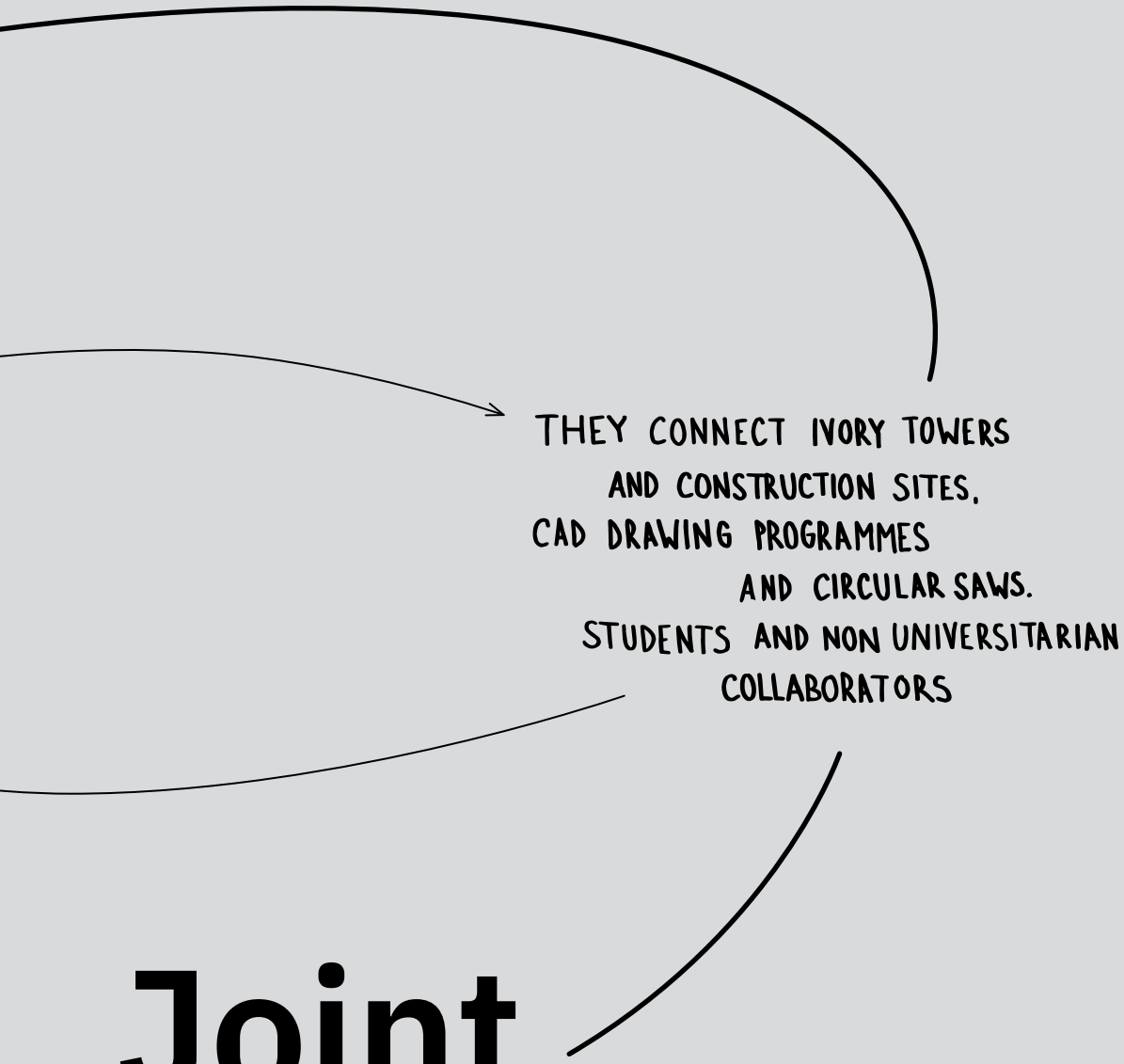
DesignBuild

AT THE INTERSECTION OF
ACADEMIC AND NON-ACADEMIC
ENVIRONMENTS,
DESIGNBUILD PROJECTS OFFER
A WIDE RANGE OF PERSPECTIVES:

THEY OPERATE IN THE FIELD OF TENSION
WHERE PRACTICAL EXPERIENCE,
RESEARCH AND TEACHING MEET.

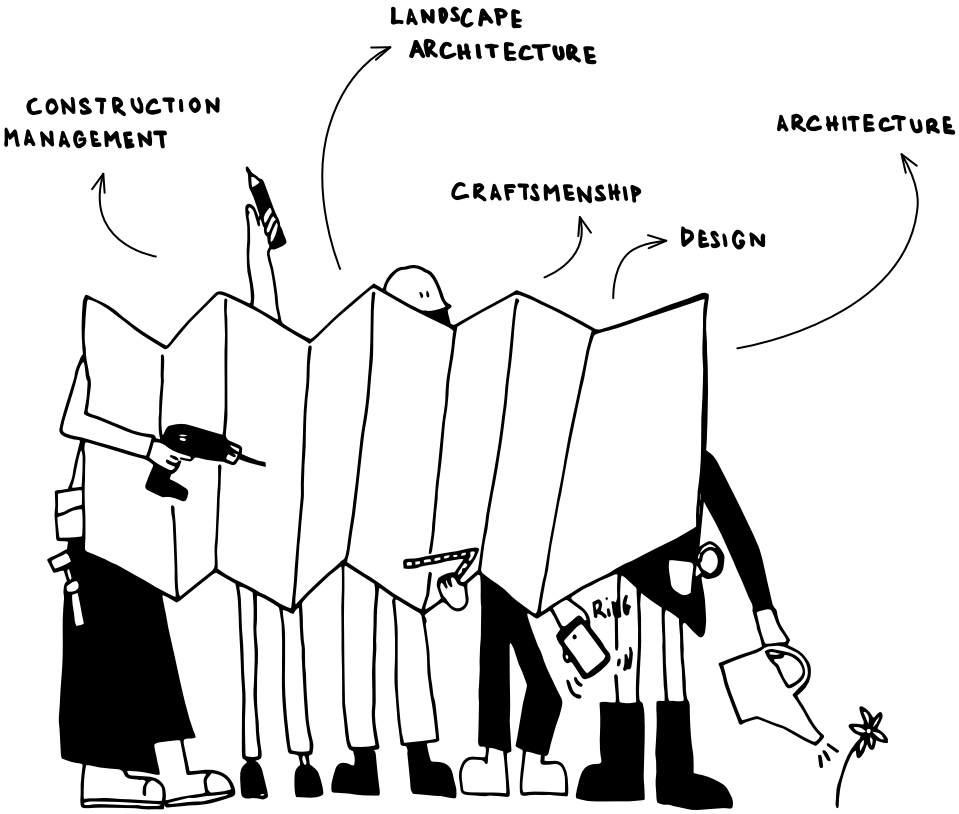
Against this backdrop, DesignBuild_ joint perspectives focuses on a collective reflection on DesignBuild as a method of architectural education through the eyes of two main actors: instructors AND students.



Joint Perspectives

No two DesignBuild projects are the same.

Huge diversity is created by many factors including location, size and composition of the team as well as the time, materials and funds available for an individual project.



Examplary disciplines in DesignBuild projects.

This diversity of content in DesignBuild emphasizes the different ways the design processes can manifest itself. The method can react and adapt, providing a showcase for the creativity of future architects and creating many potential research fields within the context of DesignBuild projects. This diversity offers the potential for architecture to react to a changing society. In this publication, we want to explore this potential by interrogating the gap between intention and reality in DesignBuild projects. Joint perspectives builds upon the foundation of two previous works: The master's thesis "Design-Build in architecture education" by Charlotte Perschmann and Ammon Budde as well as Nina Pawlicki's dissertation "Agency in DesignBuild".

The master thesis "Design-Build in architectural education"[1] examines whether DesignBuild can play a role in architectural education, one that can help to find answers to the changing demands of the discipline and the changing role of its practitioners. The project focuses on the Institute for Architecture at the Technical University Berlin and questions how the DesignBuild method can be best integrated into successful teaching and learning processes, while doing justice to the societal responsibility of architecture. The thesis contains personal and collected student experiences, a wide-ranging survey with more than 350 current and former students as well as interviews with collaborative partners in architecture and professors, such as Prof. Roswag-Klinge, Prof. Pasel, Prof. Hartig and Prof. Dr. Düchs.

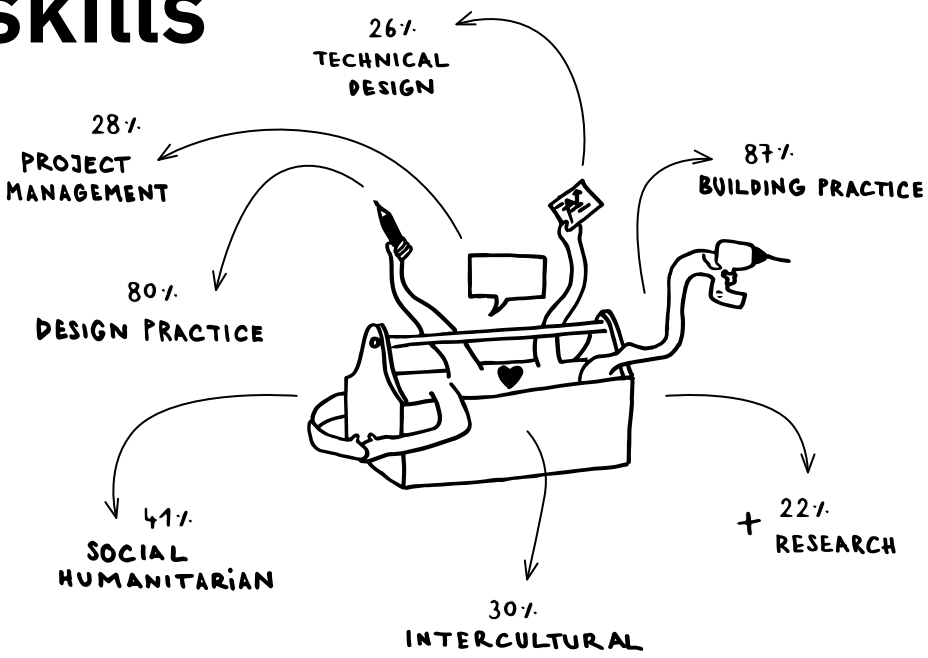
In addition to a comprehensive study of the existing literature, the dissertation "Agency in DesignBuild"[2] draws its information from the dbXchange.eu database, an online platform co-initiated by the author, as well as her own practical DesignBuild experience. Using this foundation, quantitative data, historic developments and characteristic interface positions between architectural education, practice and the wider societal impact are all analysed, as well as the intended goals and potential fractures between intention and reality.

Based on these two works, we are using this publication to develop a DesignBuild_joint perspective that relies on our two perspectives – as students and instructors. To do so, we are examining the personal and historical significance of DesignBuild, as well as the challenges that intention and reality pose for us. Using the area of tension between societal transformation, architectural education and production in which DesignBuild operates, we explain our joint DesignBuild hypothesis and translate it into an exemplary set of tools.

1 Charlotte Perschmann, Ammon Budde, "Design-Build in architectural education" (Berlin, Technical University Berlin, 2021), https://issuu.com/charlotte.perschmann/docs/220120_ma_db_einzelseiten. Excerpts from this publication are marked with **STUD** at the beginning of the text.

2 Nina Maria Pawlicki, "Agency in DesignBuild: on the borders of the teaching and practice of architecture and wider societal impact" (Berlin, Technical University Berlin, 2020), http://dx.doi.org/10.14279/depositonce-9685. Excerpts from this publication are marked with **INST** at the beginning of the text.

Transportation of skills



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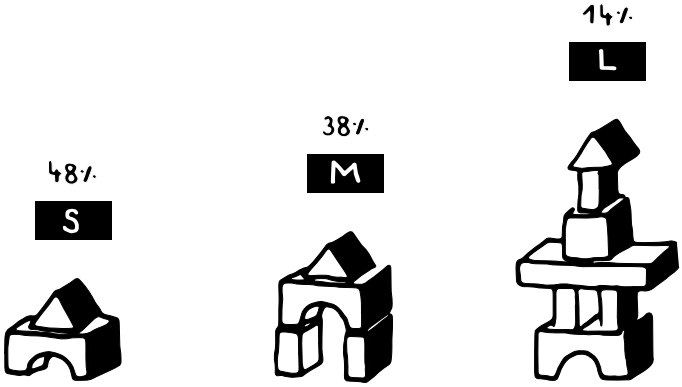
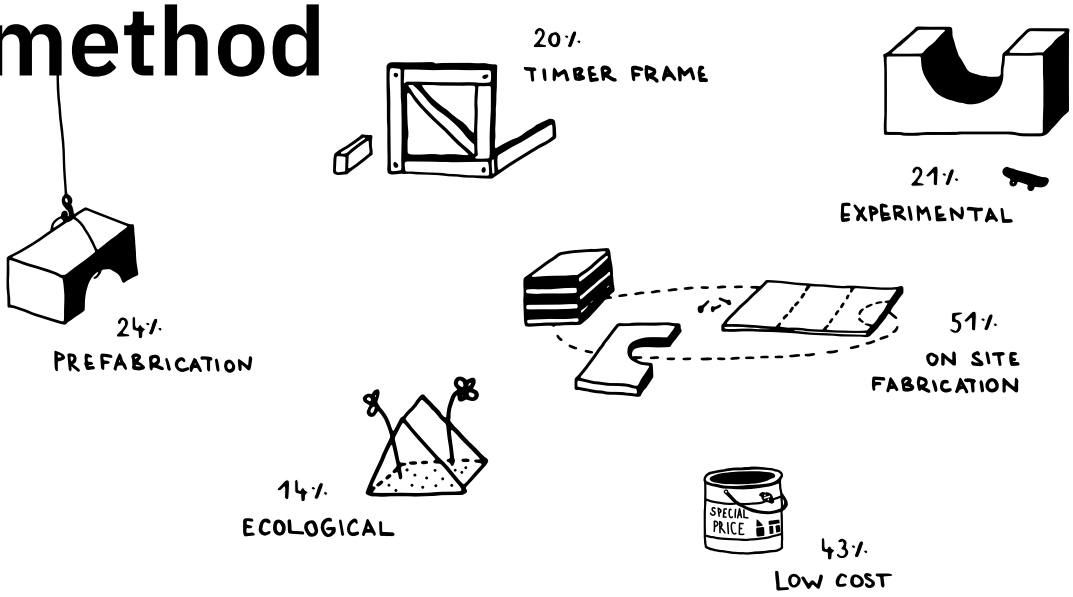
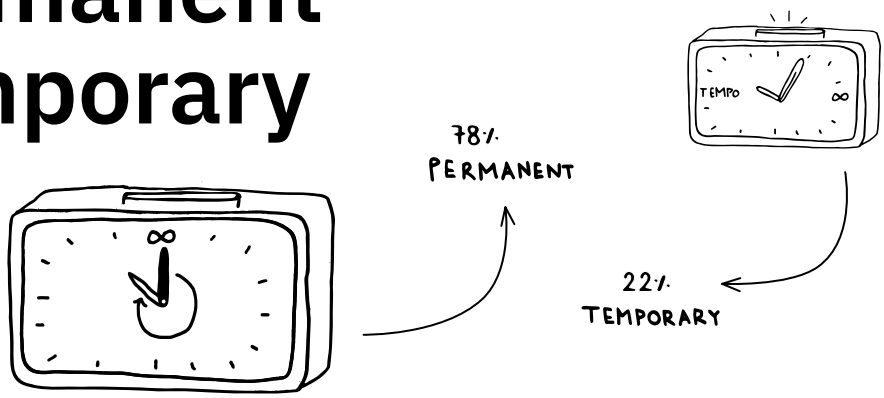


Construction method

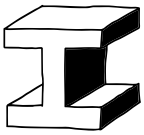


Permanent Temporary



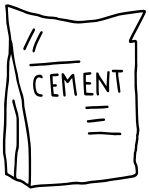
Source of Data: 231 DesignBuild projects on www.dbXchange.eu (Pawlicki 2020, 226ff.)

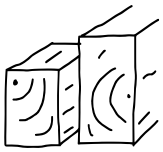
Building material



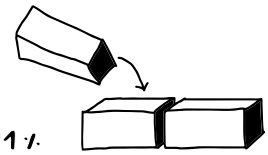
19 %
METAL

16 %
CONCRETE

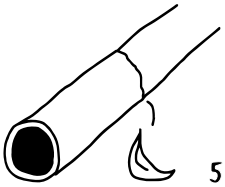




58 %
WOOD



11 %
BRICK / MASONRY



5 %
PLASTICS / RESINS

14 %
EARTH
CLAY
ADOBE

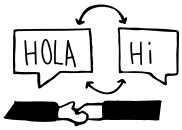
Project focus

21 %
SUSTAINABILITY

37 %
LOW COST

16 %
CULTURAL
IDENTITY

20 %
PEDAGOGY



25 %
INTERCULTURAL
COLLABORATION

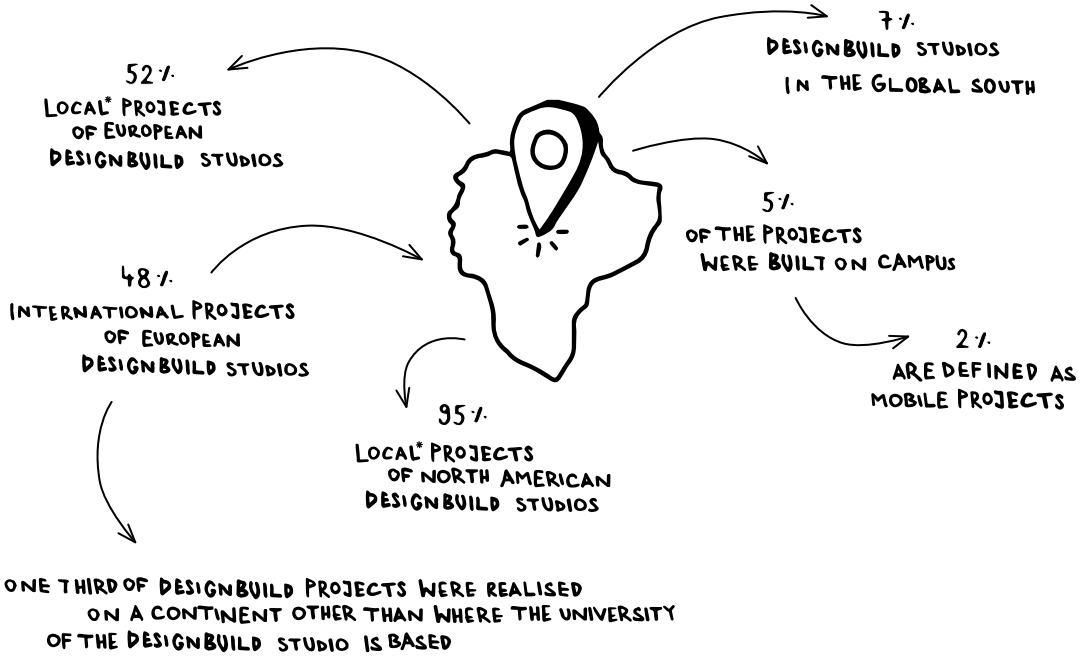
25 %
PARTICIPATION

+ 41 %
SOCIAL
ENGAGEMENT

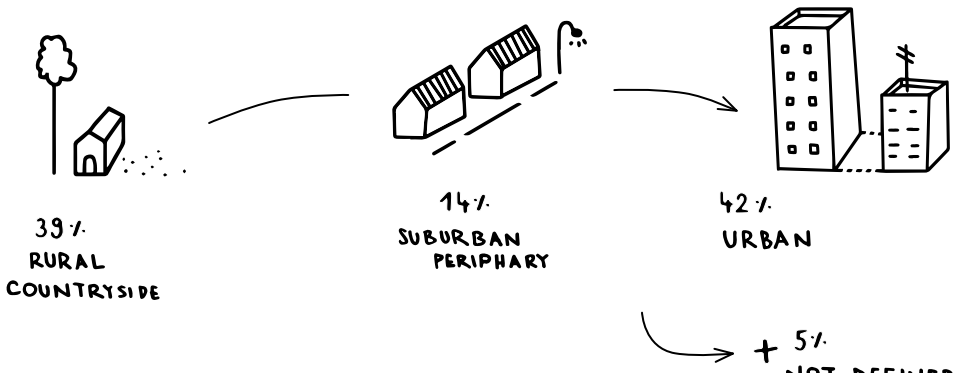
+ 20 %
RECYCLED / REUSED
MATERIAL

Location

*Local: same regional context of built project and university where DesignBuild studio is based.



Context



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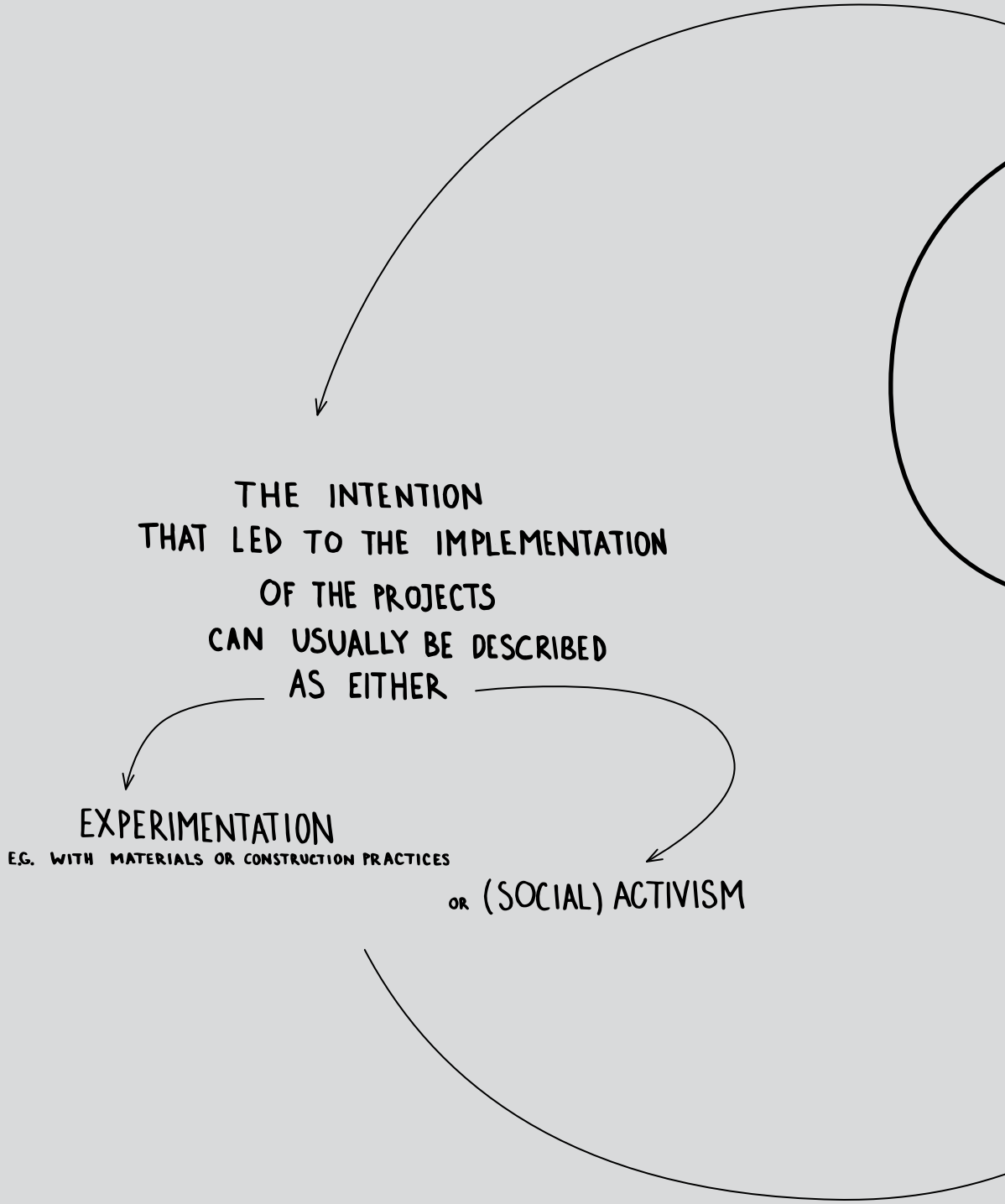

THE INTENTION
THAT LED TO THE IMPLEMENTATION
OF THE PROJECTS
CAN USUALLY BE DESCRIBED
AS EITHER
EXPERIMENTATION
E.G. WITH MATERIALS OR CONSTRUCTION PRACTICES
OR (SOCIAL) ACTIVISM

The observations of the historic development show the creation and development of DesignBuild projects as an effort to reform the respectively predominant orientation and methods of architectural education and practice.

Movement

INSTEAD OF THE RATHER OBVIOUSLY
PRACTICAL-BASED OPERATION
WITH WHICH DESIGNBUILD PROJECTS
ARE OFTEN DESCRIBED,
IT CAN BE NOTED THAT
THEY ARE OFTEN ROOTED IN
THE INTENTION TO REFORM
CURRENT PRACTICES.

We were actively engaged in various DesignBuild projects during our studies and work at the Institute for Architecture at TU Berlin - amongst others in these projects:

• Centro Cultural Las Gilces

Las Gilces, Ecuador

DesignBuild Studio: Pasos e.V., Berlin
In collaboration with: Comunidad Las Gilces

Website: www.pasos-ev.org

#studentinitiated #permanent #international #thesis #bamboo #community center

• Landwirtschaftsschule & Internatsgebäude Bella Vista

Bella Vista, Bolivia

DesignBuild Studio: CODE, TU Berlin
In collaboration with: Fundación Cristo Vive Bolivia

Website: www.bellavista.code.tu-berlin.de

#multiphased #permanent #international #brick #educational facility

• Taller Tropical

Medellín, Colombia

DesignBuild Studio: Oasis Urbano Collective
In collaboration with: Community leaders in Moravia, Medellín

Website: www.oasisurbano.org

#longtermcooperation #summerschools #communitycenter #localstudents #bamboo

• Hertzallee

Berlin-Charlottenburg, Germany

DesignBuild Studio: CODE, TU Berlin
In collaboration with: TU Berlin

Website: www.code.tu-berlin.de/hertzallee-pavillon

#builtoncampus #permanent #infrastructure #steel

• NBL Hub

No fixed location

DesignBuild Studio: NBL, TU Berlin
In collaboration with: various

Website: www.nbl.berlin/projects/nbl-hub

#transportableinfrastructure #events #wood #cargobikes #installation #temporary

• Infozentrale auf dem Vollgut

Berlin-Neukölln, Germany

DesignBuild Studio: NBL, TU Berlin
In collaboration with: Actors on the Vollgut Site

Website: www.nbl.berlin/projects/infozentrale-auf-dem-vollgut

#circularconstruction #reusedwood #community center #studentled #materialexperiment

• Kitchen Hub

Berlin-Schöneberg, Germany

DesignBuild Studio: CoCoon-Studio / Habitat Unit, TU Berlin
In collaboration with: Über den Tellerrand e.V.

Website: www.cocoon-studio.de/portfolio/kitchen-hub

#communitykitchen #interiordesign #summerschool #livingtogether

Agricultural school, Bella Vista

Taller Tropical, Medellín, Colombia

Taller Tropical, Medellín, Colombia
Process

Agricultural School, Bella Vista
Process

Centro Cultural Las Gilces, Ecuador
Process

Centro Cultural Las Glices, Ecuador

Infozentrale auf dem Vollgut, Berlin

Infozentrale auf dem Vollgut, Berlin
Process

Hertzallee, Berlin

Hertzallee, Berlin
Process

NBL Hub, Berlin
Process

NBL Hub, Berlin

Kitchen Hub, Berlin

Kitchen Hub, Berlin
Process

What does DesignBuild mean to us?

Perspective of students

STUD DesignBuild is an experience, a format and a concept which we got to know during our architecture studies at TU Berlin. It is a teaching method that is more practice-oriented than traditional architectural education and encourages participants to be active and try things.

During our studies, we participated in different DesignBuild projects and are looking back on very positive experiences – even if not everything went smoothly all the time. We view our work on these projects, the knowledge we gained, the critical reflection and the processional and interpersonal exchanges as something very enriching – not just with regard to our professional but also our personal growth. We believe that this teaching method, which was shaped by the DesignBuild projects, has changed our view of and attitude toward architecture.

This method has many types of potential that, each on its own, would already make its integration into our studies worthwhile. In their sum, however, they motivated us to look at the DesignBuild topic in greater depth.

We realise that DesignBuild is not the only method that attempts to convey certain competencies to students that go beyond those of the classic architectural education. However, it combines many of these competencies into one. In addition, it makes students deal with certain topics because it is so reality-based and has a very stimulating and motivating effect. In practice, depending on the context, construction is also different and cannot be transferred at will. However, nearly all participants are aware of that. As the survey "Design-Build in architectural education" (Perschmann, Budde 2021, 62ff) shows, the insights into the field of construction practice are very illuminating. In particular, the need for a specific analysis and the accompanying flexibility are an important step for budding architects. This also involves disengaging from conventions and expanding one's horizon in an appropriate setting. Testing rules, norms and what is possible allows students to create something new and innovative. It's about a contemporary orientation of architectural education and, as a result, also the practice of architecture.

It is time to redesign education since the classic formats are out of touch with reality and insufficiently respond to the current demands on architecture – and therefore also of those on architects. To us, the DesignBuild teaching and learning method has great added value that should be fostered at all costs. That is why we argue for a change in the classic architectural education more toward teaching it in a way that is more practice-oriented and closer to reality. DesignBuild, with the additional competencies it teaches, could lead to better-prepared architects who are more equipped to handle the environmental challenges of our time and the changing demands of our society.

Perspective of instructors

INST The development of architectural education is similar to that of apprenticeships (Sara 2004, 98): from the pre-technocratic phase, in which the job is learned directly at the future place of employment, and the technocratic phase, in which the vocational education was moved to universities, to the post-technocratic phase, in which it is no longer about acquiring knowledge and more about skills. It is a combination of these three developmental phases with which teaching in the DesignBuild Studios wants to react to the central challenge of architectural education – the constant balancing of the importance of theoretical and practical construction skills. However, in my experience as a student, instructor and somebody who networks, an in-depth discussion on how this combination can be applied methodically often comes up short in the routine of project work. The work on my dissertation "Agency in

DesignBuild" gave me the opportunity to use a more wide-ranging discourse to examine the reaction of vocational training in the form of educational-methodical approaches to current societal challenges and to transfer them to DesignBuild.

The philosopher John Dewey is often listed as a progressive thinker of practical education. He stood for a close link between generating knowledge and skills with one's own experience as the key to learning, and thereby shaped the philosophy of "learning by doing" (Hardin, Eribes, and Poster 2006, 23). However, as he describes it in 'Democracy and Education' (1916, 225), it is not just experience through which knowledge and skills are generated, but primarily the reflection on experience. He identified the instructor as a moderator who makes learning possible through experience, critical scrutiny and reflection (Sara 2004, 103). Everyday situations offer many natural and dynamic opportunities to learn. Education should mirror them, as well as societal complexities and insights, and then reflect them onto society in order to contribute to the development of society as a whole (Dewey 1916, 366). In architectural education, this concept was used increasingly in the project approach and project instruction (*Projektmethode*). The DesignBuild Studio, in the way in which it is designed, comes closer to this approach than the conventional design studio. In the project instruction philosophy according to the theories of Karl Frey (1984), the instructor does not assume the role of the person who has knowledge and is patronising, but rather that of a collaborator. The students plan their own work and also carry it out themselves, and the end result is often a visible product. This learning based on one's own experience was then further theorised as the "experimental learning model" by Fry and Kolb. The model consists of four steps that, as a cycle, create a wealth of experience, which then results in a new cycle: the individually specific experience **(1)** is followed by the observation and reflection on the experience **(2)**, which are then generalised in the form of abstract concepts **(3)** and finally tried out in a new situation **(4)** (Kolb and Fry 1974, 33 ff.).

Another aspect is the contribution that the choice of the learning method makes to a democratic development. This was already a central aspect for Dewey and was detailed further in the much-quoted Pedagogy of the oppressed by Paulo Freire (1970). The preface of Richard Shaull (1970, 34) describes two perspectives: either how education is practised as a tool to integrate a new generation into the logical conformity of the current system and therefore originates from reproduction; or how education becomes an instrument for a practice of freedom, and critically and creatively deals with reality and allows one to find out by themselves what the participation in transforming the world might look like. The development in an attitude that corresponds with the second interpretation is a central concern in the thinking of Freire that should be passed on: "There is no such thing as a neutral educational process" (1970, 72). Freire criticised the education system of his time as "banking model" with the image of a student as a depository that the instructor "fills" with their knowledge. According to Freire, this model cannot develop critical thinking. The knowledge is not developed by the students themselves, which creates oppression. That, in turn, contradicts Freire's understanding of knowledge as a result of people's creative processes.

In the early 1980s, the theories mentioned here resulted in discussions that were specifically about architectural education. In addition to the theories of Donald Schön, in which he also doubts whether the current form of education qualifies one for the job as community architect, the critical approaches of Thomas A. Dutton are particularly worth mentioning. With his attitude, he was viewed as an important proponent of a critical pedagogy in architectural education. This approach shaped his practical experience as part of the community design movement and initiator of the Over-the-Rhine Studio at Miami University in Ohio. In Design and Studio Pedagogy, which he authored in 1987, he criticized the current culture of architectural education in the form of the design studio, which allows no dialogue with its hierarchical

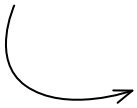
and competitive structures. Using the term "hidden curriculum," which stands for unspoken values, attitudes and norms that arise out of the social fabric of the university and the content of the classes, he called for a process of rethinking. He described this as "What is taught in design studios plays a strategic role in the political socialization of students" (Dutton 1987, 17). In the mid-1990s, the so-called Boyer Report "Building community: a new future for architectural education and practice" by Ernest L. Boyer and Lee M. Mitgang was published (1996). In the sense of a call to action, it was often cited in publications on the changing architectural education. In the report they published, Boyer and Mitgang list a total of 7 goals as a framework for a new interpretation of the education and practice of architecture. This was intended to lead to achieving an "enriched educational climate in the academy and profession", which would not only allow architecture to create great buildings but also contribute to healthy communities (Boyer and Mitgang 1996, 28). The report triggered a movement that can be called "engaged scholarship". According to the detailed studies of Beaulieu, Breton and Brouselle (2018, 12), "engaged scholarship", can be defined as "a true academic posture, rooted in values of social justice and citizenship, that prompts academics and universities, in their roles of teaching, research, and service to society, to work in ways that will build mutually beneficial and reciprocal bridges between university activity and civil society".

The concepts of engaged scholarship in architectural education pursue a trans-disciplinary approach. They incorporate non-academic actors in their work, just like had often been called for in the relevant literature and those working in architectural education (Boyer and Mitgang 1996; Checkoway 2001; Sara 2004; Millican and Bourner 2014). One of the most popular approaches is that of service-learning. As "a form of experimental education in which students engage in activities that address human and community needs together with structured opportunities for reflection designed to achieve desired learning outcomes" (Jacoby and Howard 2015, 158), it is not just used in connection with teaching architecture. In addition, the public interest design approach is becoming increasingly popular in planning and design fields. It is defined as "A design practice composed of three tenets – democratic decision making through meaningful community engagement, an issue-based approach, and the requirement for design evaluation" (Abendroth and Bell 2016, 308).

In addition to the teaching-methodical approaches that can be used to frame DesignBuild from the perspective of instructors, I believe that there are also aspects that allow DesignBuild to be described even better from a personal perspective. For example, the connection of DesignBuild to construction practices that is very often mentioned by students also plays an important role for many instructors. By implementing construction projects, architects working in academia can keep working on their practical skills and, just like the students, build their project portfolios. In addition, as a part of their academic portfolios, they also allow them to prototypically assess and test their research fields using the built objects. The interdisciplinary and transdisciplinary cooperation that is intrinsic to DesignBuild is a factor of central importance in the world of academia.

DesignBuild allows projects to be implemented that would never have happened in the course of conventional client-supplier dynamics (Pawlicki 2020, 106 ff.). The result is a fascination with this type of project that I share with many instructors. Against the backdrop of a lack of resources in terms of knowledge, time and economic means, most of the projects – and perhaps all of them – would not be able to get realized by architecture offices or freelancers. Their implementation in an academic setting certainly requires greater commitment than needed for conventional teaching formats. However, for many instructors it seems to be worth it to work on construction projects that they believe to be deserving and thereby

make a contribution to society. Being able to "live out a personal belief in a professional setting" certainly plays an important role in this regard. In addition to working more closely with those in other disciplines as well as the students, which would certainly be a more impersonal experience in conventional design studio projects, it is also the close connection to co-operation partners and the future users of the building that drives many projects from the perspective of the instructors. The otherwise immanent semester rhythm is thus abandoned, as the role of the contact person continues and expectations should not be disappointed. And, as more experience is gathered and mechanisms, networks and tools are developed, DesignBuild projects become more efficient. That is why many colleagues share my view: DesignBuild is addictive.



Shared perspective

STUD+INST We are defining the potential of DesignBuild as the areas where our perspectives intersect.

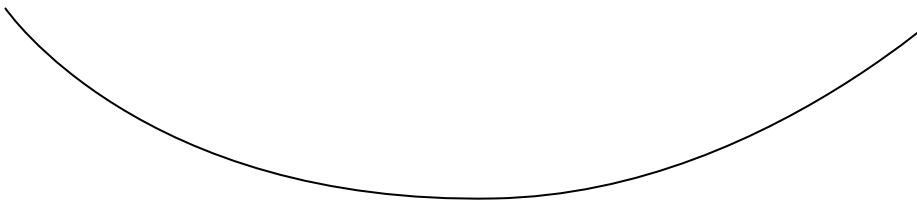
This refers to architectural education itself, as students and instructors move away from bulk production (see the "Design-Build in architectural education" survey). The architectural education of the students but also the work of the instructors at universities, is improved by:

- Developing an understanding for the big picture of architecture: Understanding connections, consequences and effects as well as developing a greater foresight in the future.
- Expanding and building upon expert knowledge.
- Making progress together and thereby enabling sustainable learning and retaining knowledge through its practical application instead of continuing vertical teaching structures.
- Trying out and learning craft skills and thereby understanding them better.
- Expanding and strengthening teamwork (within a discipline and across disciplines).
- Trying out, expanding and improving communication with all participants, whether that means colleagues, specialist planners, craftspeople, clients, users, neighbours, etc.

- Learning to assume responsibility.
- Creating and maintaining a continuous connection to professional experience.
- Trying out, expanding and promoting interdisciplinarity.
- Experiencing motivation and actionism when actively participating in the construction and design of a building.
- Experiencing and learning spontaneity and creativity, which are the result of short-term, unanticipated challenges on construction sites and therefore call for the development of alternative solutions.

The completed object, which is by definition the result of any DesignBuild project, creates types of potential that go beyond it and offer the opportunity to question conventions and the norms of professional practice. For example by:

- Assessing and further developing experimental approaches.
- The opportunity of developing new dimensions of practising architecture.
- The completion of construction processes that would not have happened if they had not been conceived as DesignBuild projects.
- Empowerment of civil participants, neighbourhoods, communities, etc.
- Developing, fostering and training social engagement.
- Strengthening the cooperation between universities and society. Through transdisciplinary processes, society gets to benefit from the work at universities and then, the insights gained from the projects are integrated back into the work at the universities.
- The altering and shaping of the self-perception of architecture creators and how they are viewed from the outside.



A lot of the potential has not been fully developed by a long shot yet. This also requires a continuous collection and exchange of the experience and insights that were obtained.

In this spirit, and in order to foster this method, our publication creates a sense of sensitivity for the challenges in DesignBuild projects, compiles our knowledge and inspires future developments.

What has stuck with you after your DesignBuild experience?

"THE DIFFICULTIES ONE HAS TO OVERCOME IN REAL LIFE AND THE PRIDE OF LOOKING AT A COMPLETED TANGIBLE PROJECT."

"IN ADDITION TO THE AWESOME TIME, THE SKILLS I LEARNED ..... THE EXPERIECE TO DO SO TOGETHER. NO COMPETITION, NOBODY HAS TO PROVE THEMSELVES (AT LEAST NOT MOST PEOPLE)"

"BY IMPLEMENTING A DESIGN YOU LEARN A LOT, SUCH AS HOW TO DO SO IN REAL LIFE, WHICH PROBLEMS CAN ARISE AND HOW THESE CAN BE SOLVED."

"SPONTANEITY. RETHINKING TEAMWORK TRYING THINGS LEARNING FROM MISTAKES ARCHITECTURE IS SUPER COMPLEX!"

„THAT EVERYTHING TAKES LOOOOONGER THAN ANTICIPATED AND THAT THE CRAFTPEOPLE ALWAYS KNOW BETTER HOW TO IMPLEMENT SOMETHING THAN THE ARCHITECTS."

"A GREAT METHOD IF DONE WITH CRITICAL REFLECTION AND TOGETHER WE NEED MORE OF THIS."

"IT HAS OPENED UP NEW PERSPECTIVES OF WHAT ARCHITECTURE CAN BE AND HOW IT IS DONE."

"I BELIEVE THAT DESIGN BUILD IS THE BEST WAY TO LEARN A WAY OF WORKING AT UNIVERSITY THAT IS REFLECTING AND INDEPENDENT."

"TEAMWORK IN MORE OR LESS FLAT HIERARCHIES, GROUP ORGANISATION AS WELL AS THE PARAMETERS OF THE APPROPRIATENESS AND IMPLEMENTABILITY OF A DESIGN."

"ADVENTUROUS CHALLENGES, DESPERATION AND IN THE END: ALWAYS A GOOD SOLUTION! SINCE THAN I HAVE DEVELOPED A DIFFERENT VIEW ON „EASY" SEEMING CONSTRUCTION SITE TASKS THAT IT IS REALLY HARD WORK AND AS AN ARCHITECT YOU SHOULD NOT ONLY KNOW THAT BUT ALSO HAVE EXPERIENCED IT."

"THE INTENSITY, THAT MAKES THE KEY DIFFERENCE BETWEEN GOOD AND VERY GOOD ARCHITECTURE."

Source of Data: Survey, "Design-Build in Architectural Education" with over 350 students and ex-students from various universities in Germany. (Perschmann, Budde 2021, 62 ff)

Origin of the term

INST The term DesignBuild[3] was first used in the construction practice in the USA. There, it arose in the 1970s and 80s as part of the major urban redevelopment plans of John Portman in Atlanta (Carpenter und Hoffman 1997, 7)[4]. Going forward, the field of architecture was referred to as DesignBuild in which architects serve along the lines of a general contractor planning, carrying out and sometimes developing projects.

In contrast, in the current teaching methodology the terms academic or educational DesignBuild are often used in American English. With regard to architectural education, DesignBuild was probably used for the first time in 1973 at the Welsh School of Architecture, as Bob Fowles, who worked there as a professor at the time, explains: "So, from the belief that 'learning-by-doing' was the way forward, and the coming together of Mike Harries and myself, somewhere there emerged the term 'Design-Build' applied to our project work. And yes, we were probably the first to do this within the context of architectural education, and it was part of our vocabulary from 1973 onwards". He describes himself as an active networker: "I do believe I [...] had an influence on 'spreading the gospel' by networking with others who were starting to do similar work". In 1984, Fowles' article Design-build projects in architectural education was published in the journal Design Studies in which, to the author's knowledge, the term DesignBuild is used for the first time in written form as a designation in architectural education theory (Fowles 1984, 7).

In connection with US studios, such as Rural Studio, Rice Building Workshop, Yestermorrow or Over-the-Rhine, the term has been used since the early 1990s[5] while the majority of studios in Europe initially used terms like internship seminar, practice project, 1:1, One2One, Fullscale or Realstudio. In the project documentation of the early projects initiated by European studios, you can find descriptions such as "architectural social invention as practical implementation exercise" by Dietmar Steiner (Fattinger, Orso, und Pitro 2004, 9) or "Internship projects abroad with experimental character" (Götz 1999, 5), which provide evidence of the search for a suitable name for these teaching formats. The term DesignBuild, which originated in the USA, was used slowly in Europe beginning in the mid-2000s. In Europe, it was Peter Fattinger in 2002 who first referred to a teaching format he introduced at the Technical University of Vienna as DesignBuild-Studio following the American example. Events such as symposiums or exhibits, as well as research projects and networks, increased the popularity of the term and therefore also its use.

By 2021, the term DesignBuild was primarily used for the corresponding teaching method and has achieved a name recognition in the academic circles dealing with architecture education. However, it is unclear how well it is known outside of these circles.

3 Including alternate spellings like Design-Build, Design/Build or Design Build.

4 The initial roots of this work of architects as planners, builders and developers in the sense of the professional DesignBuild, however without using that term, can be found in Dave Sellers' group of architects in Prickly Mountain, see chapter DesignBuild history.

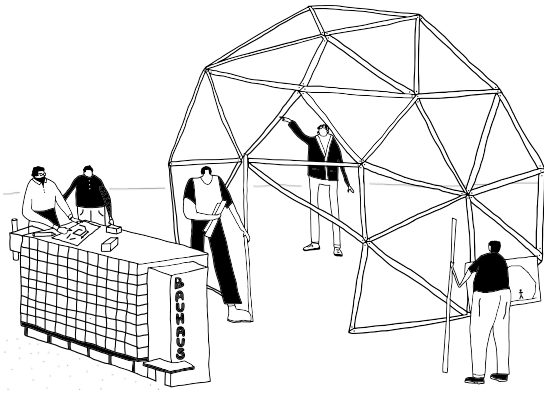
5 This finding of the author is supported by the communication with Anna Goodman, who earned a PhD at the University of California, Berkeley in 2015 with a dissertation entitled Citizen Architects: Ethics, Education and the Construction of a Profession, 1933-2013.

DesignBuild history

INST To date, there is no comprehensive global compilation and analysis of DesignBuild. One of the reasons for this is certainly that the term for the teaching method had not asserted itself internationally until the early 2000s. Furthermore, a strict differentiation to related teaching methods is not always possible and / or advisable. In addition there are almost no publications dedicated to the theoretical backgrounds of DesignBuild that go beyond a compilation of project reports. This chapter therefore aims to list all important and relevant steps for the development of the teaching method. The purpose is not to single out and examine individual case studies, but rather to put them in a respective context as well as that to events at the time. The goal is to use the information to gain central, advanced insights into the intentions in the area of architectural education on which DesignBuild is based.

Pioneers of the DesignBuild movement in architectural education from 1919

In most cases, when looking at DesignBuild as a teaching method in a historic context, the **Bauhaus** in Weimar (Blechschmidt 2013; Fattinger 2011, 48ff.; Storonov 2017) is mentioned as the first institution that intentionally implemented a core principle of DesignBuild – "skilled manual labour as an educational theme" (Wick 1982, 64). However, this was not done when implementing construction projects but rather in a type of education that was similar to being taught a craft, and, pursuant to the concept of Bauhaus founder Walter Gropius, offered an "artistic-vocational dual qualification" (Wick 1982, 63). He established the combination of artistic and vocational training as a criticism of the existing system of art academies that "brought about the development



Pioneering DesignBuild projects were defined by craftsmanship and constructive experiments.

of a great art-proletariat destined to social misery. For this art-proletariat, lulled into a dream of genius and enmeshed in artistic conceit [...] without being given the equipment of a real training" (Gropius 1965, 21). At the same time, in the Manifest of the Staatliche Bauhaus in Weimar, he demanded: "Architects, sculptors, painters—we all must return to craftsmanship! [...]. The artist is an exalted artisan" (Gropius 1919).

As a focal point of the art school reform, (Wick 1982, 54) the Bauhaus programme primarily pursued two goals, as Rainer K. Wick summarised in Bauhaus Pädagogik: the "aesthetic synthesis (integration of all art and craft sectors under the umbrella of architecture)" and the "social synthesis (gearing the aesthetic production toward the needs of large swaths of the population and not exclusively the demand of a small socio-economically privileged class)" (Wick 1982, 49). The way in which the goals of this innovative pedagogic approach were to be achieved always depended a lot on the school administration and the respective instructors working there at the time. The early years under Gropius, following the founding in 1919, were modelled after the concept of the medieval mason's lodge. He believed that it "brought together many similar artisans – architects, sculptors, craftsmen of all stripes – and, because they were of the same mind, they independently and humbly, contributed their part to tasks that had to be completed together" (Wick 1982, 28). The embodiment of this image can primarily be

You may find DesignBuild Studios marked **like this** in the timeline ↗ p. 46-47

found in a six-month course developed by Johannes Itten, in which students were introduced to working with wood, metal, fabric, paint, glass, clay and stone. He pursued the approach of individual experimentation that allowed students to find new solutions. Although the content was strongly guided by Itten, this approach consisted much more of learning-by-doing than formal lectures and relied on the writing of John Dewey, which was published at the same time. Learning-by-doing, which also characterises DesignBuild, developed into the actual Bauhaus method and, ultimately, also embodied the progressive study of architecture across the globe (Banham 2002, 237 ff.).

In spite of the often-cited quote "The ultimate goal of all art is the building!" from the founding manifesto of Gropius, there was no official architectural education at the school until the introduction of an architecture department in 1927. Initially, Hannes Meyer, who later ran the entire school after Gropius left in 1928, taught the architecture course. He founded the systematic, science-based teaching of architecture that was in line with his definition of social functions and was based on an analysis of society and biological factors (Meyer, Meyer-Bergner, und Winkler 2004, 86). He clearly objected to any type of aestheticism and emphasised the importance of social commitment: "Building and designing are one and they are a social event. As a 'Perfected art of design', the Bauhaus Dessau is no artistic phenomenon but a social one"(Wick 1982, 45).

For political reasons, Ludwig Mies van der Rohe took over as head of the school in 1930. He limited "Meyer's call for social efficiency through the unconditionality of a quality concept" (Bothe und Wingler 1977, 109) and significantly reduced the productive operation in favour of education. (Wingler 1968, 500).

In 1933, the year in which the Bauhaus closed, former Bauhaus students Josef and Anni Albers, who at the time taught the pre-course and served as deputy director and head of the weaving mill, emigrated to the USA to the **Black Mountain College**. It had been founded earlier in the same year in North Carolina by John Andrew Rice and Theodore Dreier together with colleagues who all had recently quit or been fired from the Rollins College.

The doctrine at the Black Mountain College was often viewed as a takeover and refinement of the doctrine and philosophy of the Bauhaus, and it was also guided by the progressive ideas of John Dewey. However, the teaching focus at the Black Mountain College was less on emphasising the craft and more on developing the corresponding skills. It conveyed a much more experimental and holistic educational approach with "head, heart and hand" in which art played a special role: "The arts were central to the educational experience rather than on the periphery" (Black Mountain College Project 2019). It focused on interdisciplinary learning by jointly developing projects in the areas of artistic design, theatre, music, literature, mathematics or architecture. The geodesic dome by Buckminster Fuller, which he built with students at Black Mountain College for the first time in 1948, is often cited as an exemplary project of this approach to teaching architecture. In addition, the first part of the academic building was, for the most part, built by professors and students. Initially, this was done for financial reasons. However, it was soon reinterpreted as a "miniature model for social structures" for which the students had to be prepared. In subsequent years, additional classrooms and houses were built on campus as part of architecture classes (Blume u. a. 2015, 206 ff.).

As opposed to the Bauhaus, the holistic approach manifested itself in the communal, deeply connected way in which students and instructors lived and learned together on campus. The goal was a relationship between students and instructors that was as non-hierarchical as possible. As a result, the philosophy of the Black Mountain College can be described as an experiment of an "education in a democracy", in which creative and practical skills were as important

as intellectual development (Blume u. a. 2015, 222).
While financial reasons forced the Black Mountain College to close in 1957, **Taliesin/Taliesin West**, which was founded by Frank and Olgivanna Lloyd Wright in 1932, still exists as the Taliesin School of Architecture. Here, too, living together in Taliesin in the state of Wisconsin in the summer months and in Taliesin West in Arizona in the winter months plays a central role. According to the Taliesin Preservation Foundation, the idea for its founding originated with the many inquiries from students that Frank Lloyd Wright received. Wright was also one of the best-known critics of the so-called Beaux-Arts Movement in the USA. He had a low opinion of its "affected elitism" and referred to their teachings as "artificial, superficial, and totally unsuited to American needs" (Draper 1977, 216). As a result, Taliesin was not designed as an architecture school but rather as a fellowship programme.
The training pursued a holistic learning through an approach with an emphasis on the importance of the arts as well as designs inspired by landscapes and nature, which was typical for Wright. Twenty-three apprentices lived together with the Wright family on one of the properties, whose construction and upkeep was financed by their tuition. In addition to commissioned work from the Wright architecture office, the apprentices also carried out the design and construction of campus facilities. While this mainly meant upkeep and expansion work in Taliesin, Taliesin West was completely built in this way. Far more experimental than these construction projects was the practice of building oneself one's own residence on the property, a shelter –, or to adapt an existing residence to one's needs and then to live in it. It is a tradition that continues to this day. In addition to Frank Lloyd Wright as central figure, outsiders are often invited to spend time in Taliesin and to engage Wright and the apprentices. This not only includes architects. Instead, artists, musicians, dramaturgs or actors were intended to serve as an important source of inspiration.

None of these teaching approaches at one of the three aforementioned architecture schools is referred to as DesignBuild. However, they shared central (partial) aspects of DesignBuild, such as the hands-on implementation of designs, the cross-disciplinary cooperation as an educational tool, as well as trying to give architectural education and practice a new direction.

Even though interdisciplinary cooperation played a central role at all three schools, the projects that were developed were nearly exclusively internal school collaborations.
The development and implementation of innovative teaching methods at the three aforementioned schools are evidence of a sense of rebelliousness and the desire for change in architectural education at the start of the 20th century. This not only refers to the way in which architecture is taught and learned at architecture schools with a polytechnic or artistic orientation but, in particular, also a reorientation of the professional practice of architects with all of its challenges before and after the war. "Learning by experience" (Wick 1982, 158) via the medium of manual work and communal living was a central tool to meet pedagogic goals. The predominant design-determining parameters at the time as well as historic teaching contents were questioned. As opposed to the "irrevocable esquisse"[6], that dominated the architecture schools modelled after the École des Beaux Arts, the design parameters at the three schools arose from the context and the network of the schools themselves: the building trades, arts, natural space and, in part, also the predominant social challenges. Personalities such as Frank Lloyd

6 At the beginning of a project, students at the École des Beaux Arts had to create a quick sketch, the "irrevocable esquisse", whose basic parameters were considered binding in the further development. The aim of the esquisse was to imitate the constraints and foundations for the design.

Wright certainly further shaped the curriculum along the lines of a Studio Master, which was also true, although less explicitly, in the case of the instructors at the Bauhaus and the Black Mountain College. Still, the schools attempted to counterbalance the type of learning offered by instructors in terms of the reproduction of knowledge, methods and rules with a learning experience in the sense of an independent and creative refinement of experiences the students had made. Josef Albers described this in 1924 in his essay Historic or now: "[...] teaching is circular. [...] Lots of history leaves little room for work. The reverse: little history - lots of work, that is what concerns us" (Albers 1924, 171).

This renunciation of the architectural education practices that had been predominant up to that point, and the search for new pedagogic approaches with practice-reforming character could also be found in Great Britain. As founder of the Arts and Crafts School, William Lethaby attempted to break down the strict separation between design and production at the turn of the century. However, this was dismissed by leading figures, such as C.H. Reilly, the director of the Liverpool School of Architecture, as rural picturesque as opposed to the contemporary international urban style (Powers 2015, 10). The curriculum, which was influenced by Beaux-Arts, as a target of the modern revolution, was reflected in the reorganisation of the studies and the curriculum at the **AA** (Architectural Association), which was founded in London in 1847 by its young director E.A.A. Rowe. Technical and social factors were integrated into architectural education and replaced the "irrevocable esquisse".

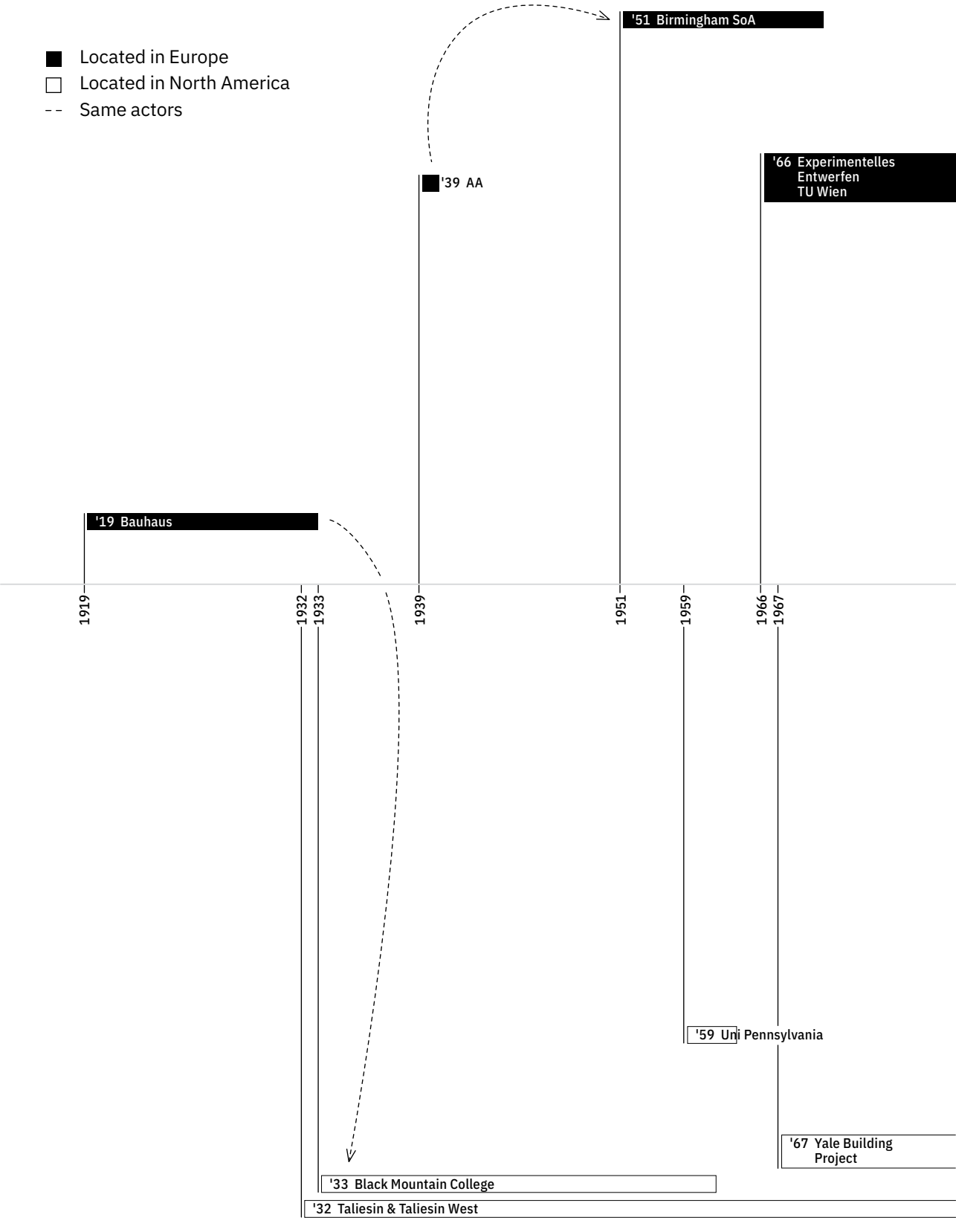
At AA in 1939, led by Douglas Jones, probably the first, rather sparsely documented DesignBuild / Live project at an established school was implemented (Crinson und Lubbock 1994, 111). It was the expansion of a barn in Edlesborough, Bedfordshire, as a wooden frame construction. In the student magazine Focus 4 from 1939 (cited by Powers 2015, 12), the intention behind the project was described as follows: "It is not a matter of teaching eclectic craftsmanship, or of establishing a mystical union with the earth, but of understanding how and why things are done". This makes it clear that this project was not a type of activism. Instead, in the manner of DesignBuild, it pursued a pedagogic goal in education that was intended to be achieved through the tool of building it themselves. In 1947, after the end of World War II, Douglas Jones became director of the **Birmingham School of Architecture.** In spite of criticism from RIBA, the professional body of British architects, he completed a few live projects there from 1951 to 1962 (Brown 2012, 26). These projects are also not well documented. However, a transcript from the archive in Birmingham, which was published on the website of the Collaborative Laboratory, shows that the projects were continued even after Jones left. This archive also shows that the students participating in these projects were not always involved in the construction process. Instead, they assumed the role of architects during the implementation phase.

Student initiatives, protest and reform movements of the 1960s

The social upheaval and revolts of the 1960s symbolised another important step with major implications for the development of DesignBuild. In the 1950s, a few DesignBuild projects were implemented, such as a prototypical residential building, which was built by Harwell Hamilton Harris and students at the University of Texas and a building by Jacques C. Brownson, a student of Mies van der Rohe, in Illinois in 1954 (Carpenter und Hoffman 1997, 3). The oldest ongoing DesignBuild Studio is the **Yale Building Project**, which was initiated in 1967 by Charles W. Moore in close cooperation with Kent Bloomer. Yale University appointed Moore as director in 1966 and, just one year later, the article 'Out of the Atelier and Into Reality' published in the magazine Progressive Architecture noted that his work at the Department of Architecture had provided the activities there with a "decidedly non-Ivory Tower aspect" (no author 1967, 166).

DesignBuild projects in the late 60s were encouraged by student protests and resulting activism.

He was a proponent of having students spend less time in the studio so that they could gain experience on their own. This attitude was in line with that of the predominate formats that had been initiated by students and, in particular, a "design-build culture that already existed at Yale" (Hayes 2007, 14). For example, the students Peter Gluck and David Sellers, together with fellow students, designed and built two houses for family members during a break in their studies and on days in which they did not have class. When they graduated in 1965, they purchased properties in Vermont on a plot of land that would later be known as Prickly Mountain. Their plan was to live together on the land and design and build ski lodges there in order to sell them later on. As a result, they founded one of the first professional DesignBuild studios in the USA. The buildings were very experimental and in part constructed with unusual materials in order to reduce planning to a minimum. In 'Progressive Architecture Magazine', the journalist C. Ray Smith later described the working atmosphere as an "architectural happening", while Sellers and Gluck viewed the building process as a "source of inspiration" (Smith 1966, 153). The activities in Prickly Mountain were not formally connected to the School of Architecture at Yale but they attracted many students on days without classes. However, the project also generated a lot of interest at Yale and inspired a group of students to autonomously implement the design for a lodge in Camp Farnam in 1966 as part of a final thesis (Hayes 2007, 15). Charles Moore used these initiatives and, as part of the Yale Building Project and as opposed to the profit-minded projects in **Prickly Mountain**, steered them toward social responsibility. This was also a reaction to the growing concern of students "to make design more responsive to the complex needs of the world around us" (Moore 1967, 29) and pursued a clearly education-oriented goal: "To teach architecture simply as the composition of shapes is out of the question. [... the designer] must be able to make things knowingly, to compose shapes and voids, as well as to manipulate programmatic firsts" (Moore 1968, 19). In order to achieve these educational objectives, the Yale Building Project was described in the publication celebrating its 40th anniversary as a combination of pragmatic thinking and socially progressive goals (Hayes 2007, 16). While the initial years primarily revolved around the construction of community centres, the focus in the 1970s and 80s was redirected toward pavilions and installations for leisure activities.


Located in Europe
Located in North America
Same actors
'51 Birmingham SoA
'39 AA
'66 Experimentelles Entwerfen TU Wien
'19 Bauhaus
1919
1932
1933
1939
1951
1959
1966
1967
'59 Uni Pennsylvania
'67 Yale Building Project
'33 Black Mountain College
'32 Taliesin & Taliesin West

Starting in 1989, the main focus was on the construction of affordable single-family homes, which is discernible to this day. Paul Brouard succeeded Charles W. Moore and ran the studio from 1972 to 2006. Adam Hopfner, who had previously participated in the project for nine years, including as a student, took over as its director in 2007 (Hayes 2007, 35). Prickly Mountain, however, also led to other developments: One of the students who was fascinated by this way of living and working together was Steve Badanes, who participated in the project in 1968 in his first year at Princeton University: "I saw these guys basically using architecture as a way to have a good life. [...] That vision gave me the willingness to hang in there and finish school" (Jacobs 2007). In the following years, he began building installations and houses with his fellow student John Ringel and, in 1975, Jim Adamson completed the Jersey Devil trio. Together, they completed several construction projects, such as single-family homes or installations in the US and across the globe. With regard to their shapes and materials, their construction projects often were of a very experimental nature and focused on social and ecological aspects. This was also reflected in the way they dealt with the context in great depth: during the construction phase, they lived – often for months – in a camper van on the construction site. To this day, they are still teaching at various institutions and always pursue a DesignBuild approach (Hailey 2016).

Initiatives such as Jersey Devil, Prickly Mountain and the Yale Building Project symbolise a form of activism that came into existence as an answer to the demands of the 1960s[7] for more relevance in the cultural field.

This was the era of the civil rights movement and student protests against social inequality, which led to a sense of optimism, as described by Mary Hardin: "In those heady days of social activism, when dramatic change seemed both desirable and possible, students and professionals alike were impelled by the moral and social imperatives of the Civil Rights movement" (Hardin, Eribes, und Poster 2006, 2). Steve Badanes also describes the discontent among architecture students with the direction of the profession's practice, and, as a result, also with what was taught at the universities: "In 1968 the Vietnam War was raging, Martin Luther King, Jr. and Bobby Kennedy were assassinated, and all the architecture profession seemed to care about was project fees" (Badanes 2008, 249). The protest culminated in the early termination of the AIA convention in 1969. However, the activism was not constrained to demonstrations, as Badanes notes: "We felt that architectural education could deal with social-justice issues in a hands-on way that the academic status quo did not allow for" (Badanes 2008, 249). Therefore, this displeasure resulted in specific initiatives and many of the protesting architecture students became part of the growing **Community Design Center - CDC** movement. The Pratt Institute´s Community Education programme and the Architect´s Renewal Committee of Harlem, which were initiated in 1963, were often described as the first centres of this kind at the intersection of universities and neighbourhoods (Schuman 2006, 2)[8].

7 In Supermannerism (New York: E.P. Dutton, 1977, 3) C. Ray Smith describes: "endlessly, ubiquitously repeated throughout the 1960s the words 'revolution', 'relevance' and 'involvement' became overworked to the point of cliché. ... Everyone was 'involved' with 'relevant' causes. This was not mere verbiage. Real, radical activism pervaded society, and it challenged established standards, fixed principles, entrenched institutions, rigid hierarchies, and all authority."

8 In addition, projects such as the Melon Neighborhood Commons Park by Karl Linn, landscape architect and professor at the University of Pennsylvania were already implemented together with students from 1959-1962 (A. Goodman 2019, 2).

In Great Britain, on the other hand, it led to the establishment of project offices at universities, which operated in a similar manner but were profit-oriented instead of grant-funded. In this case, students paid for their work (Sara 2004, 134).

The CDCs in the USA were created as a reaction to the urban renewal programmes, in which urban areas, which had previously been primarily populated by African Americans or an ethnic minority, were redesigned and sometimes also relocated. As community activism, which covered everything from political to artistic work, they symbolised an intersection between universities and society: "All espoused the philosophy of engaging students in the social issues of the day, and in supplementing classroom learning with direct neighbourhood contact" (Schuman 2006, 4).

As part of a community design centre, architecture students and instructors designed and built primarily small-scale projects for residents of these low-income communities. They shared their expertise with those who did not have access to architectural services – either due to financial or political reasons (A. Goodman 2019, 2; Hardin, Eribes, und Poster 2006). The idea of the CDCs followed an understanding of their own profession to create a social added value for disadvantaged demographics. The focal point was the belief that planning and designing professions can make a significant contribution to the quality of life. This was very much in keeping with the times.

In Europe, the students' protest and reform movements of the 1960s led to the introduction of teaching and learning methods that worked with DesignBuild concepts. With the **Seminar Experimentelles Entwerfen** (Experimental Design seminar), Karl Schwanzer and Günther Feuerstein initiated a format at the Vienna University of Technology in 1966 in which students built temporary installations within two weeks. "Actually, nothing was designed – at least not on paper, only in the mind" (Feuerstein 2010, 34). Furthermore, political activism led to the organisation of panel discussions, protests and a lecture series. In Germany, the student movement at the architecture faculties also manifested itself in the form of cross-disciplinary seminars, radical experiments such as learning without professors and in the form of political debates, participation models and the societal use of architecture and design. Students were involved in **Stadtteilarbeit** (working in certain districts), for example in Berlin-Kreuzberg or Berlin's Märkisches Viertel, and worked collectively in office communities and political groups. Just like the CDCs in the USA, the work in the urban districts was interdisciplinary and shaped by politics. In Kreuzberg, for example, it turned against total renovation and favoured a sensitive handling of existing buildings and their residents under the motto "urban renewal instead of renovation" (Gribat, Misselwitz, and Görlich 2017, 152).

As opposed to the Community Design Centres in the USA, the long-term result of this work in Europe was less the founding of institutions at the intersection between academia and non-academia but rather a realignment of how things were taught at universities. For example, working in groups and interdisciplinary and project-oriented work were introduced during this time (Gribat, Misselwitz, and Görlich 2017). In the wake of this political unrest, the probably oldest and most continuously active DesignBuild initiative of the southern hemisphere was founded. What is noticeable is that, as opposed to the examples listed above, it always stayed away from any political positioning. In 1970, architecture faculty members of the Pontificia Universidad Católica de Valparaíso purchased a 270 hectare plot of land on Chile's Pacific coast and founded the **Ciudad Abierta** there as a place for architectural and artistic experimentation while living, studying and working together – both for residents and guests alike (Dransfeld 2015, 16). All buildings and installations on the property were designed and built by students. A cornerstone of the school's design theory is "Poetry, or better yet words, [as] a starting point for designing"

Ecology plays a major role in DesignBuild projects of the 80s.

(Dransfeld 2015, 19). Manual skills also play a major role. To this day, it maintains a close relationship to the university, weekly seminars are held and students are part of the upkeep and expansion of the existing buildings.

Environmental concerns and experimental residential construction in the 1970s and 80s

In the early 1970s, the number of Community Design Centres in the USA peaked at 80 (Pearson 2003, 12). However, the general architectural discourse once again focused on design-related topics. The Yale Building Project continued its work with one construction project each year, and David Sellers, one of the founders of Prickly Mountain, taught at the Yale School of Architecture. There, Sellers inspired one of his students, John Connell, to found **Yestermorrow** in 1980. On land that was initially leased, Connell offered advanced training courses that were financed by course fees and focused on DesignBuild and green construction. He did this with the intention of strengthening the connection between craft and design: "Every designer should know how to build, and every builder should know how to design" (Rozzo 2009). In 1990, Yestermorrow purchased the 38 hectare plot of land of the former Alpen Inn hotel complex in Waitsfield, Vermont. Since then, communal living has played an important role here in addition to practical educational goals (Yestermorrow DesignBuild School 2019a). The campus is partially constructed with DesignBuild projects from the courses that focus on environmental aspects. To this day, it offers certificates in areas such as Green Woodworking, Tiny House Design / Build or Natural Building. Students are also given the opportunity of spending a semester at Yestermorrow and get credit for the classes at their universities (Yestermorrow DesignBuild School 2019b). Still, the intention of Yestermorrow was never that of providing a comprehensive education in architecture. In an interview on the 30th anniversary of his school, John Connell explains that his intention was more the opposite: "I wanted to teach the butcher / baker / candlestick maker a method of design-driven construction that would allow them to have well designed homes without the cost / annoyance of an architect" (Stephenson 2019). The courses that are being offered do not require any prior architecture knowledge and are mainly taught by guest professors. They also include the members of Jersey Devil. After Steve Badanes' first professorship at Ball State University in 1981, he was invited to teach a class at Yestermorrow the following year. Beginning in 1988 with a professorship, and now operating in a permanent position as from 1990, Badanes serves as Howard S. Wright Endowed Chair and runs the **Neighborhood Design/Build Studio** at the University of Washington, which completes one project each year with an NGO in Seattle. The 1970s, during which the dogma of progress and industrialisation was questioned, also formed the origin of environmentally friendly building as we know it in Europe today. Fittingly, Gernot Minke assumed a professorship at the University of Kassel in 1974 and founded the **Forschungslabor für experimentelles Bauen** (research laboratory for experimental building) there with a focus on green building and the development of alternative building systems. By working together with architecture students, the uses of natural and recyclable materials were tested and refined. Another objective, in addition to the goal of researching materials, was

making the building process accessible to the populace in order to reduce energy consumption and investment costs for buildings. Over 36 years (through 2011), this resulted in the completion of 50 research projects. In connection with them, students, researchers, architects and Minke himself designed and built many buildings on the premises of the University of Kassel (Minke 1995; Universität Kassel 2012).

In addition to environmentally conscious construction, residential construction was another central topic that European students worked on in the 1980s as part of DesignBuild projects. In light of the lack of living spaces for students in Stuttgart, the architecture professors Peter Sulzer and Peter Hübner initiated the **Bauhäusle** DesignBuild project at the University of Stuttgart. Between 1980 and 1983, the project, which includes a communal building and multiple adjacent residential buildings with space for a total of 30 students, was planned and executed by students. The buildings, which were completed thanks to the dedication of the instructors, are still occupied by students to this day (Awan, Schneider, und Till 2013, 108). The Bauhäusle (2019) website details the pedagogic concept behind the project: "Under the motto of 'learning by building yourself', young students were supposed to combine their theoretical work on the drawing board with practical work using hammer, saw and nails. The idea behind it was to help students understand building and construction by allowing them to plan and design their own dorm and, ultimately, also build and live in it." One initiative at the University of Stuttgart that preceded the Bauhäusle project was an exercise that asked students to design their own small dwellings. The same method can also be found in the Abteilung **Experimenteller Hochbau** (Experimental Building Construction department) at the Graz University of Technology, which was headed by Peter Schreibmayer from 1988 to 2008. In addition to temporary installations and dwellings, students also built prototypes for minimalistic and inexpensive residential construction (Fattinger 2011, 70). From 1984 to 1987, architecture professor Peter Stürzebecher included students in the implementation of the **Wohnregal** cooperative building project in Berlin-Kreuzberg's Admiralstraße. As apprentices, the students, while working with specialist companies, were mainly responsible for woodworking and expansion tasks on the six-storey building. Stürzebecher emphasised the connection to academic studies. It was important to him "that the construction tasks of the students [...] actually served the implementation of experimental building with social aspects as well architectural innovation and the educational objectives of a university education" (Nylund und Stürzebecher 1986, 47).

In the 1980s many US DesignBuild activities were expanded and consolidated in the form of the Neighborhood Design/Build Studio, the ongoing activities of the CDCs and the foundation of Yestermorrow – many of which still operate to this day. Meanwhile the European scene was mainly characterized by isolated initiatives involving individual or temporary projects. In both cases topics such as green building and housing were common.

New projects at the turn of the millennium and establishment in Europe

The spread of DesignBuild continued in the 1990s. The number of DesignBuild Studios in the USA continued to grow and the initial studios launched in Europe remain active to this day and helped their spread in recent years while also contributing to the establishment of networks such as dbXchange.eu or Design for Common Good.

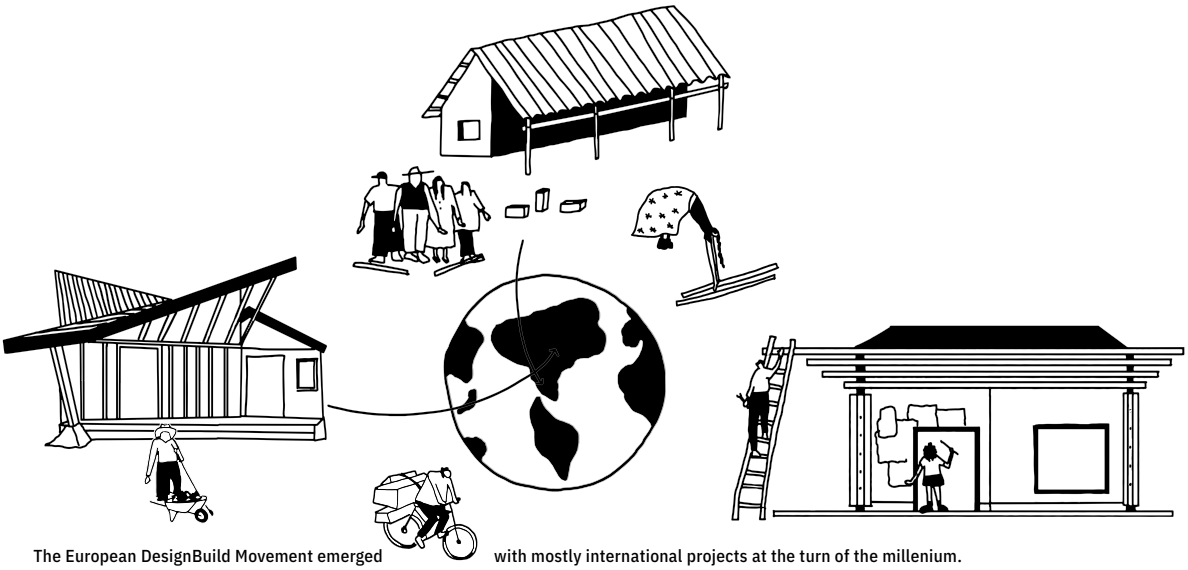
To this day, the best-known studio is the **Rural Studio**, a branch of Auburn University in rural Alabama. In 1992, two students, the architecture professor Samuel Mockbee and the chairman of architecture at Auburn, D.K. Ruth, completed an initial DesignBuild project not far from Auburn as part of their thesis. The timing of the project coincided with the wishes of Ruth and Mockbee to execute permanent construction projects instead of the temporary, small

construction experiments that used to be practised on campus. The initiative was based on the realisation that architectural education increasingly focused on academic instead of constructive contents and that, as a result, the connection between aesthetics and the reality on which the design was based was getting lost (Dean und Hursley 2002, 6). Mockbee was a proponent of an approach that prioritised ethical, social and ecological factors in architecture, which he referred to as "challenging the status quo into making responsible environmental and social changes" and, pursuant to which, everybody deserved access to "good design". Therefore, he called for a change to the concept of architecture, which was very style-focused at this time, and therefore a departure from "paper architecture" toward the establishment of a "moral sense of service to the community" (Dean und Hursley 2002, 1). In this regard, he also named the members of Jersey Devil as inspiration for the Rural Studio. To this day, they remain a fixed part of the studio network as guest critics (Hailey 2016, 9).

Against this backdrop, Ruth and Mockbee were looking for a place that was far enough from Auburn to ensure that the students would not get distracted by campus life. They found it in rural Alabama near Greensboro, an area whose economic, cultural and ethnic background was similar to the region of Mississippi in which Mockbee had already completed pro bono projects. As a result, the Bryant House, the first project of the Rural Studio, was built in 1993 in Hale County and its surroundings, where no building codes are used due to lacking economic resources (Dean und Hursley 2002, 7). Since then, third-year students, or those working on their final project, have officially been living and working in the Rural Studio for a semester or one year. Actually, many of them, the so-called left-overs, often remain there much longer until their construction project has been completed. The final theses projects in particular are collaborated on by small teams of 3-4 students. Initially under the direction of Mockbee, and, following his death in 2001, under Andrew Freear, the studio has completed more than 150 projects to date – most of them within 25 miles of its head office in Newbern. The term citizen architect, which was coined by Mockbee, still shapes the image that is conveyed by the studio. The projects range from inexpensive residential construction to public buildings, its own campus with farms and community projects to landscape design (Freear u. a. 2014). Today, the Rural Studio is probably the internationally best-known (and most often publicised) DesignBuild studio.

Another architecture student, Sergio Palleroni, who studied at the University of Oregon in the 1970s, was also inspired by Jersey Devil to pursue his own work, which he describes as "going out into the field and working hand in hand with disadvantaged communities" (Palleroni und Merkelbach 2004, xii). In 1993, he became an associate professor at the University of Washington. Based on his previous collaboration with the Mexican architect Carlos Mijares Bracho, he founded the first international DesignBuild programme that operated across borders in 1995 – Design / Build Mexico – together with Steve Badanes and therefore the **BASIC Initiative** (Palleroni und Merkelbach 2004, xii). While teaching at the University of Washington and the University of Texas, Palleroni completed more than 95 projects with a wide range of functions – most of which were DesignBuild projects – in the US and across the globe. In 2008, he was appointed to Portland State University, where the work of the BASIC Initiative merged into the **Center for Public Interest Design**, which he founded in 2013.

Many of the actors in Europe who implemented their initial projects at the turn of the millennium and were later institutionalised to become DesignBuild studios also operated in accordance with this international mode: Building projects that were designed at their universities at home were then completed on other continents.



The European DesignBuild Movement emerged with mostly international projects at the turn of the millenium.

The headlines for the projects that were displayed in the DesignBuild category of the 'Think Global, Build Social!' exhibition at the German Architecture Museum (DAM) and the Architekturzentrum Wien (Az Vienna) in 2013 clearly show that these studios in particular became known in those years for their international dealings. They were titled 'Designed in Aachen – Built in South Africa', 'Designed in Linz – Built in India' or 'Designed in Vienna – Built in Austria and Indonesia' (Kraft u. a. 2013, 164 ff.).

As the first studio of this type, the **Mexikoprojekt** (Mexico Project) was founded in 1999 by Prof. Ingrid Götz. In the project documentations, she referred to it as an "Internship project abroad with an experimental character". The idea for it was based on the initiative of two students, who had travelled to Mexico the previous year for an internship with a German-Mexican architect. Instead of this internship, they worked on building three houses, a latrine and the establishment of a roof tile factory in Zaniza in the Mexican state of Oaxaca. Inspired by the report of the two returning students and their work in Mexico, many students wanted to continue the work in the remote villages of the Oaxaca province (Götz 1999, 4–5). Therefore, Prof. Götz developed a teaching format as part of which students spent the winter semester at TU Berlin on preparing a construction-ready design and then, during their semester breaks, built them in rural Mexico. By 2012, approx. 35 building projects had been completed in southern Mexico. Most of them were buildings for women's cooperatives, schools, child care centres or churches. On the one hand, Ingrid Götz describes her initial intention as wanting to sensitise young students to the problems of indigenous villages in Mexico and to "give a few impoverished indigenous villages a helping hand" (Götz 1999, 4–5). On the other hand, she also wanted to provide the students with an opportunity to implement their designs 1:1. Following her retirement in 2002, the project was initially continued by Axel Huhn, who had been one of the first participants as a student in 1999, as a Studienreformprojekt (Study Reform Project). In 2006, Ursula Hartig, who had been working on the Mexico Project as a research assistant since 2001, took over as part of the CoCoon Studio, which she had founded in 2005. In 2009, Nina Pawlicki participated in the Mexico Project as a student and then continued her work with Hartig and the landscape architect Simon Colwill as part of the studio. In 2012, CoCoon organised and led the world's first DesignBuild conference 'DesignBuild-Studio: New Ways in Architectural Education' at the TU Berlin as a meeting place for the participating stakeholders (Lepik 2013, 9).

At this conference, the idea for the EDBKN research project was born, and therefore also for the dbXchange.eu platform. In 2017, Ursula Hartig moved to the University of Munich and, as a professor for design and construction in a global context, she completed DesignBuild projects in Ecuador and Mexico. In addition, at the TU Berlin, under the leadership of Prof. Rainer Mertes, international DesignBuild projects in Afghanistan, Malawi, Tanzania, Thailand and Brazil were completed from 2003 to 2013. Since 2012/2013, the professorships **CODE** (Prof. Ralf Pasel) and **Habitat Unit** (Prof. Philipp Misselwitz) also carried out local and international DesignBuild projects. In 2017, with the appointment of Prof. Eike Roswag-Klinge, who had served under Götz as a student assistant in 1999 and was entrusted with the logistics of the first construction site of the Mexikoprojekt, the **Natural Building Lab** was founded with a focus on DesignBuild as a teaching method.

In 2000, at about the same time the Mexikoprojekt was launched, Peter Fattinger, initially as a lecturer at the TU Vienna, began to complete small DesignBuild projects in Vienna and Graz with students. The initiative later developed into the **design.build studio der TU Wien**. He was inspired by his work for the Atelier Van Lieshout in Rotterdam with its in-house production and unique workshops. That is why Fattinger's initial projects with students were temporary installations in the city, such as the mobile Keks kiosk, as well as expansion and furnishing projects. In 2003, on the occasion of the 'Just build it – the work of the Rural Studio' exhibition in the Az Vienna, Austrian architecture faculties were invited by AzW director Dietmar Steiner to also dedicate themselves to socially engaged projects as part of their architectural education programme. This was the beginning of a series of projects in South African townships, which was conciliated by the Viennese NGO s2arch_social sustainable architecture. As the initial projects under the leadership of Peter Fattinger, Sabine Gretner and Franziska Orso, a day centre for people with disabilities was built in 2004, as well as a multi-purpose building in the Township Orange Farm near Johannesburg (Fattinger, Orso, und Pitro 2004). In the project documentation, Fattinger and Orso (2004, 3 ff.) describe their insights into how these types of projects provided added value to architectural education. In addition to the hands-on 1:1 implementation, and the impact of spontaneous changes and improvements to the design, this added value also includes the comprehensive experiences that they can "take home" and "the awareness that architecture and the use of one's own manpower created something that is actually being used [...]". Following two additional international projects of this kind in South Africa and Indonesia, Fattinger has focused on carrying out local DesignBuild projects in Vienna and its surroundings since 2009.

The aforementioned call to action by Steiner was followed by others at many other universities. Looking back, it could even be viewed as the inspiration for the development of many European DesignBuild studios. From 2005 to 2007, eight German and Austrian universities participated in the construction projects in townships in Johannesburg, which were conciliated by s2arch: in addition to the TU Vienna, this also includes the University of Art and Design Linz, the TU Innsbruck and the TU Graz, the FH Salzburg Kuchl, the RWTH Aachen University, the Anhalt University of Applied Sciences and the TU Munich.

In 2006, the **design.develop.build** DesignBuild Studio at the RWTH Aachen evolved from its first project, the Montic Factory Primary School in Johannesburg. It was initiated by Bernadette Heiermann, who had served as a research assistant at the RWTH Aachen since 1993, and Judith Reitz, who initially worked as a research assistant at the RWTH Aachen before becoming a professor at the Peter Behrens School of

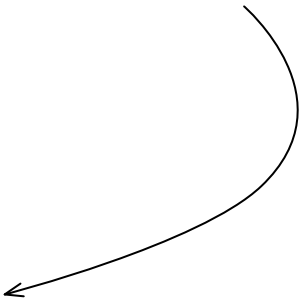
Arts in Düsseldorf. Together, they have been working on local projects with different teams to this day, as well as on international DesignBuild projects with a focus on Africa. The beginnings of TU Munich in South Africa – the Khanyisani preschool project in 2007 – under the auspices of Hermann Kaufmann together with the research assistants Susanne Gampfer and Markus Dobmeier, resulted in the **TUM.DesignBuild Studio**, which has been implementing international and local projects in Munich together with various NGOs. Gampfer and Dobmeier also founded the association **Bauen für Orange Farm e.V.** (Building for Orange Farm), which has completed other projects in South Africa with different universities, especially the University of Munich. At the University of Art and Design Linz, the first project in Johannesburg in 2004 Tebogo, a home for children with disabilities, together with the Master's thesis of Anna Heringer, the METI School in Bangladesh in cooperation with Eike Roswag-Klinge, led to the establishment of the **BASEHabitat**. At the University of Stuttgart, following the Bauhäusle, international DesignBuild projects were implemented from 2011 by different professors – initially in South Africa but then also in Stuttgart and its surroundings. As an overarching structure, the platform **e1nszue1ns – Architecture as Social Design** was established at the University of Stuttgart in 2017.

When looking at the development of European DesignBuild studios, there are also studios that, contrary to the descriptions above, primarily got started with local instead of international projects. For example, since 1995, the **Wood Programme** at Aalto University in Helsinki. It features a one-year curriculum designed for local DesignBuild projects using wood construction as well as general wood construction and related research. While the fee-based programme is connected to the Master's programme of Aalto University via a lecture series, and credits are awarded in accordance with the European Credit Transfer and Accumulation System (ECTS), there is no option to independently earn a degree.

Following a lengthy informal involvement in local projects (and in rare cases also international projects in Southeast Asia), the **NTNU Live Studio** was founded at the Norwegian University of Science and Technology in Trondheim in 2013. The underlying idea of the studio is based on making NTNU instructors available as mentors for the students and their self-initiated projects. In many cases, these are DesignBuild projects.

As demonstrated, a separate movement has formed in Great Britain since the mid-20th century – that of Live Projects – some of which are also DesignBuild projects. The history of the Live Projects had already been discussed in the dissertations of Rachel Sara (2004, 132 ff.) and James Benedict Brown (2012, 25 ff.), or the texts of Harriet Harris (Harriss 2018, 233 ff.). Therefore, only the Sheffield School of Architecture, which has been carrying out Live Projects since 1999, and the Oxford Brookes University, which has been implementing projects since 2007, shall be mentioned as representative examples. The number of DesignBuild studios has been rapidly increasing in North America since the early 1990s. This is evidenced in part by the Design Build Award, which has been presented each year since 2012 by the ACSA – Association of Collegiate Schools of Architecture (2019). Since the historic development is also well documented in the dissertations of Anna Goodman (2014) or Peter Fattinger (2011), only a few relevant studios will be mentioned. Since 1991, the Dalhousie University in Canada has been conducting so-called FreeLabs: short, two-week DesignBuild workshops in which the entire architecture school participates (Macy 2008). In addition, Ted Cavanagh founded the **Coastal Studio** as a DesignBuild programme with a focus on gridshell structures in 2004. Additional key DesignBuild studios at US universities can be viewed in the timeline (↗ p. 46–47), such as the **Studio 804** at the University of Kansas, the **Rice Building Workshop** at Rice University, the **Over-the-Rhine Design/Build Program** of Miami University or **DesignBuild BLUFF** of the University of Utah.

At the University of Virginia, DesignBuild projects have been on offer since 2000, including as **ecoMOD** projects. Marie and Keith Zawitowski, who met as exchange students in the Rural Studio in 2002, have been teaching here since 2008. Together with the architecture school in Grenoble / France, they are currently establishing the **design / buildLAB** in Villefontaine – a Design Build programme for local projects with a focus on researching the sustainable use of materials that has its own head office, the grandes ateliers. In addition, more and more DesignBuild projects are being carried out at universities in the global South. An institutionalisation can be witnessed, for example, at the **Pontificia Universidad Católica de Chile** or the **Taller Al-Borde** at the UCAL Universidad de Ciencias y Artes de América Latina in Peru or the International Program in Design and Architecture **INDA** at Chulalongkorn University in Bangkok.

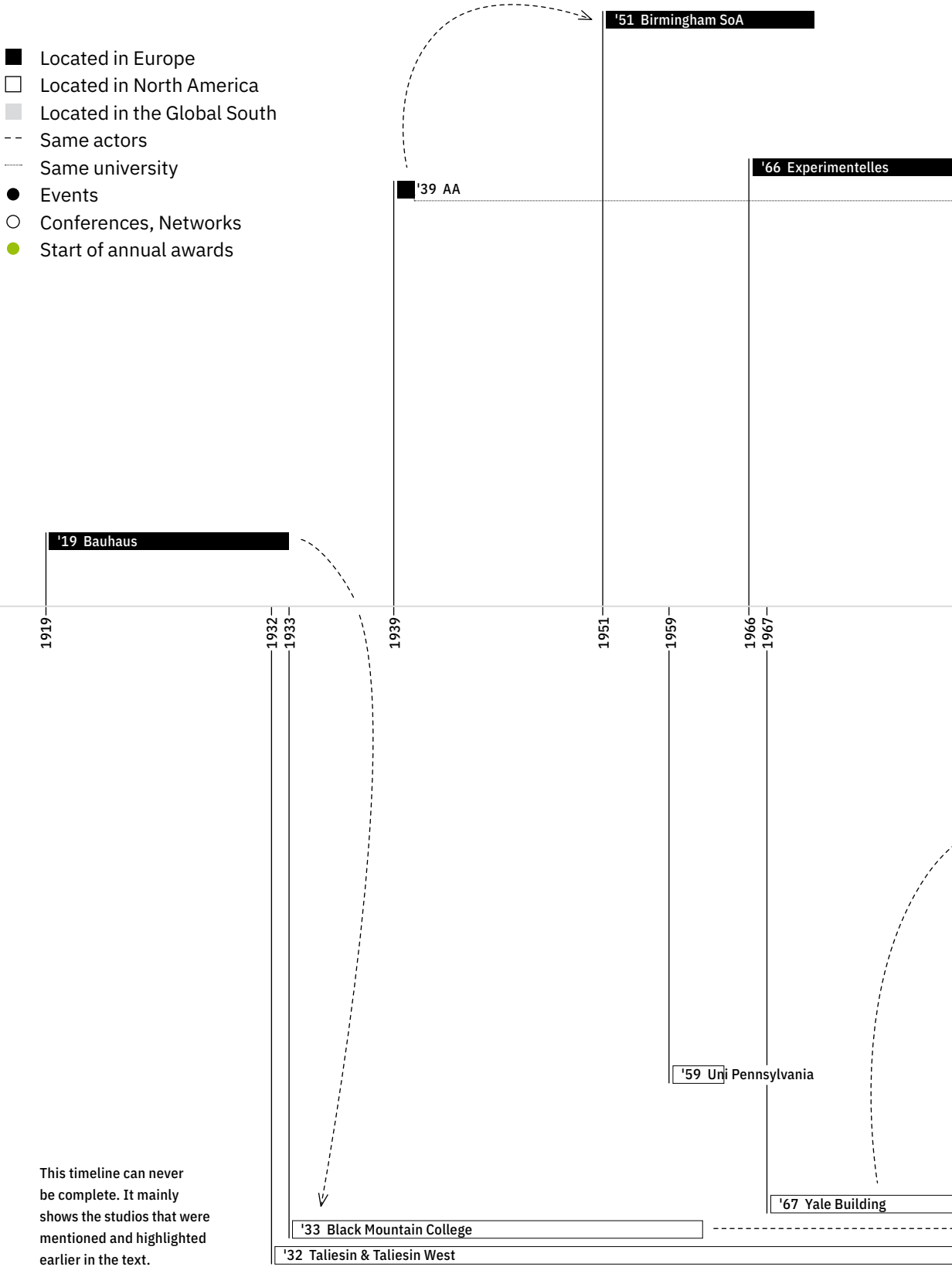


Conclusion – the history of the correlation of learning construction and architecture

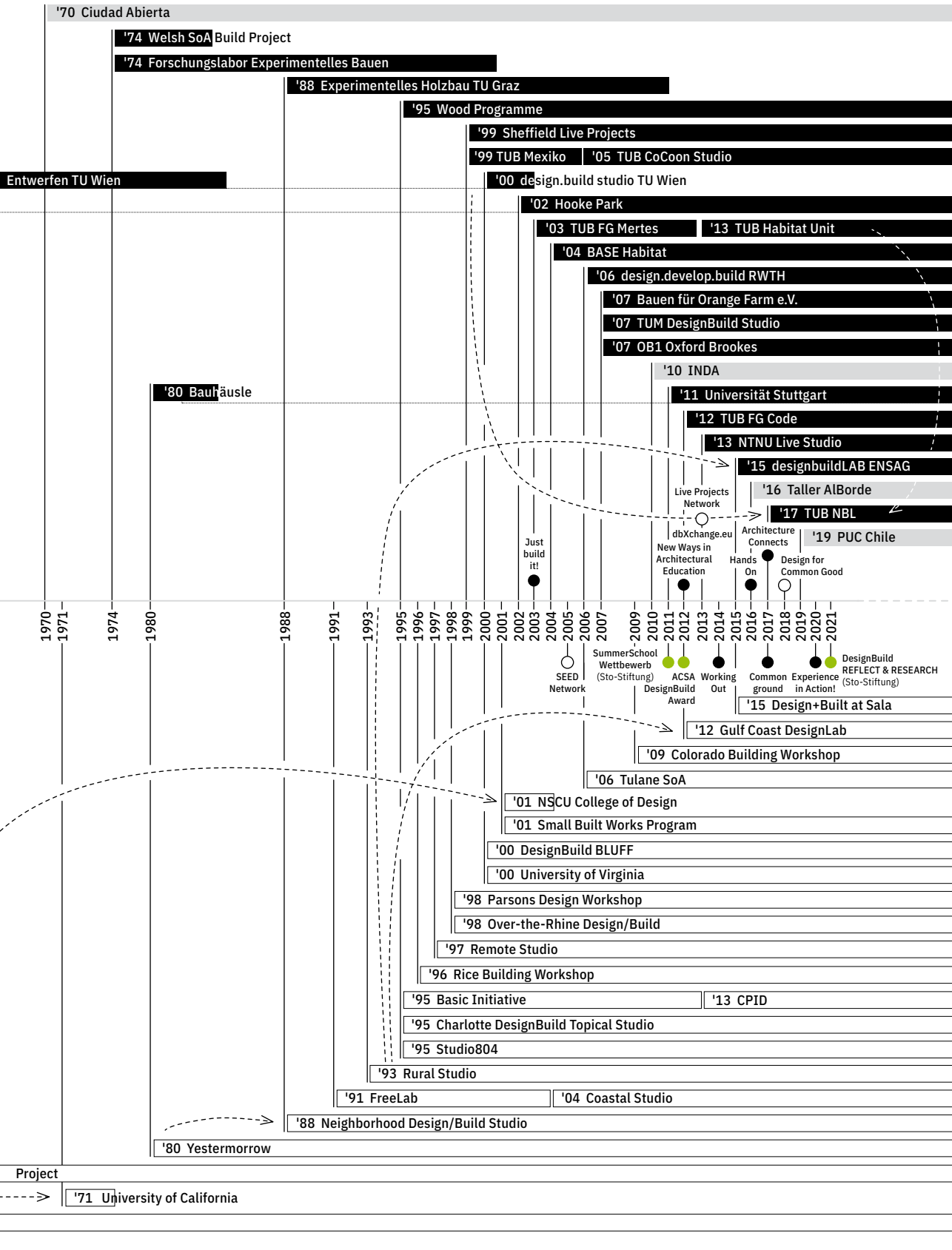
The preceding observations of the historic development show the creation and development of DesignBuild projects as an effort to reform the respectively predominant orientation and methods of architectural education and practice. The intention that led to the implementation of the projects can usually be described as either experimentation (e.g. with materials or construction practices) or (social) activism. Instead of the rather obviously practical-based operation with which DesignBuild projects are often described, it can be noted that they are often rooted in the intention to reform current practices.

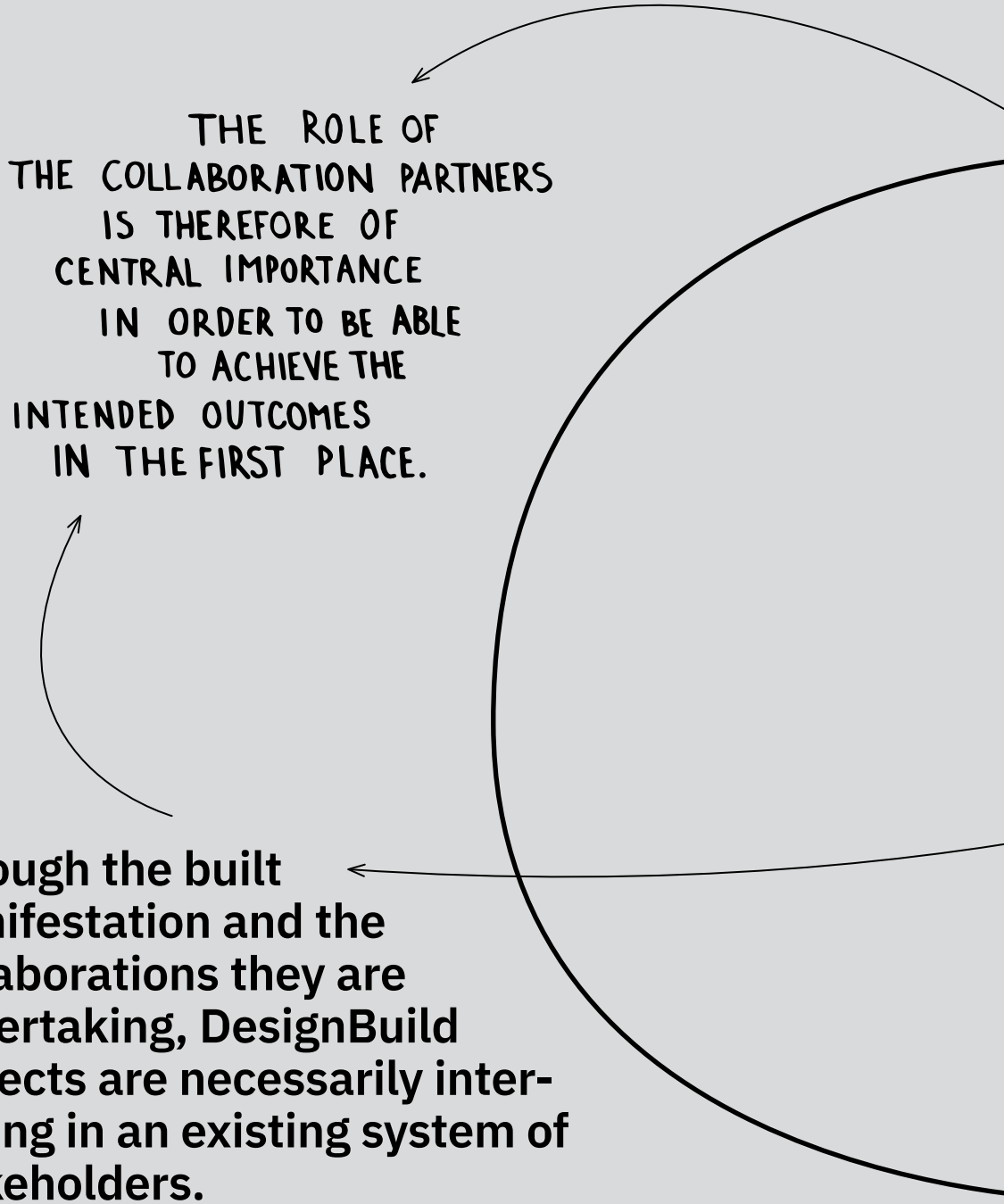
Looking back, it is primarily the 1960s and 70s that can be viewed as a key foundational period for reform efforts and for questioning the progress dogma and industrialisation in Europe and North America on which the establishment of many studios later on was built. The majority of the early DesignBuild studios focused on building tasks that dealt with demographics, social challenges and contexts away from the star architecture that had previously not been widely represented. For example, the criticism of architecture from Charles W. Moore, who founded the Yale Building Project in 1967, referenced the choice of the usual cultural buildings of national importance as a design task as well as the associated time-consuming creation of detailed visualisations of the designs (Hayes 2007, 22). Many of today's DesignBuild studios are still adhering to this underlying intention.

In many cases, it was former students or employees who served as amplifiers and either ran the studios themselves or founded DesignBuild initiatives at other universities. In line with this networking idea, connections from the Bauhaus to the Rural Studio can be observed. Experiencing the DesignBuild process in person therefore seems to have an effect on a personal level that can be identified as an important factor in the spread of DesignBuild.



This timeline can never be complete. It mainly shows the studios that were mentioned and highlighted earlier in the text.


'70 Ciudad Abierta
'74 Welsh SoA Build Project
'74 Forschungslabor Experimentelles Bauen
'88 Experimentelles Holzbau TU Graz
'95 Wood Programme
'99 Sheffield Live Projects
'99 TUB Mexiko
'05 TUB CoCoon Studio
Entwerfen TU Wien
'00 design.build studio TU Wien
'02 Hooke Park
'03 TUB FG Mertes
'13 TUB Habitat Unit
'04 BASE Habitat
'06 design.develop.build RWTH
'07 Bauen für Orange Farm e.V.
'07 TUM DesignBuild Studio
'07 OB1 Oxford Brookes
'10 INDA
'80 Bauhäusle
'11 Universität Stuttgart
'12 TUB FG Code
'13 NTNU Live Studio
'15 designbuildLAB ENSAG
'16 Taller AlBorde
'17 TUB NBL
'19 PUC Chile
Live Projects Network
dbXchange.eu
Architecture Connects
Just build it!
New Ways in Architectural Education
Hands On
Design for Common Good
1970 1971 1974 1980 1988 1991 1993 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021
SEED Network
SummerSchool Wettbewerb (Sto-Stiftung)
ACSA DesignBuild Award
Working Out
Common ground
Experience in Action!
DesignBuild REFLECT & RESEARCH (Sto-Stiftung)
'15 Design+Built at Sala
'12 Gulf Coast DesignLab
'09 Colorado Building Workshop
'06 Tulane SoA
'01 NSCU College of Design
'01 Small Built Works Program
'00 DesignBuild BLUFF
'00 University of Virginia
'98 Parsons Design Workshop
'98 Over-the-Rhine Design/Build
'97 Remote Studio
'96 Rice Building Workshop
'95 Basic Initiative
'13 CPID
'95 Charlotte DesignBuild Topical Studio
'95 Studio804
'93 Rural Studio
'91 FreeLab
'04 Coastal Studio
'88 Neighborhood Design/Build Studio
'80 Yestermorrow
Project
'71 University of California



Through the built manifestation and the collaborations they are undertaking, DesignBuild projects are necessarily intervening in an existing system of stakeholders.

Between Intention

The handling and definition of failure is highly relevant since DesignBuild studios are part of initiating the projects and therefore also symbolise a different type of responsibility.

ELEMENTS AND CONSEQUENCES
OF FAILURE
THEREFORE HAVE TO BE TAKEN
INTO CONSIDERATION HOLISTICALLY
IN TERMS OF THE
THE INTERFACE POSITIONS
OF DESIGNBUILD.

and Reality

„I EXPECT GREATER UNDERSTANDING AND THE APPLICATION OF THE LINE DRAWING IN A 3D ENVIROMENT."

„DESIGNBUILD ESPECIALLY HELPS WITH STRUCTURAL DESIGN DETAILS IT ALSO HELPS WITH UNDERSTANDING AN IN-DEPTH UNDERSTANDING OF CONSTRUCTION."

What do you expect from a DesignBuild project?

"LEARNING HOW TO HANDLE SUSTAINABLE CONSTRUCTION MATERIALS ESPECIALLY WITHIN LOAM CONSTRUCTION.
THE UNIVERSITY SHOULD NOT REFLECT THE INDUSTRY BUT EXPLORE AND STRENGTHEN AREAS THAT ARE STILL NICHES."

"COOPERATION BETWEEN DIFFERENT DISCIPLINES (RC, TWP...) IN ORDER TO UNDERSTAND BETTER HOW THEY DEPEND ON EACH OTHER AND TO FIND A COMMON LANGUAGE"

" HOLISTIC PROJECT BY CONNECTING THE ININTIAL IDEA IN THE HEAD THE HANDS AND THE IMPLEMENTATION IN REALITY. EXPIERIENCING THE DISCREPANCY BETWEEN DESIGN AND CONSTRUCTION

LEARNINING PROCESS-ORIENTED AND CONTEXT-ORIENTED DESIGN PRACTICE. LEARNING FROM MISTAKES, RESPONSABILITY, TEAMWORK AND GETTING YOUR HANDS REALLY „DIRTY" WHEN DOING MANUAL LABOUR."

"THE EXCHANGE BETWEEN ARCHITECTS AND CRAFTSPEOPLE WHICH IDEALLY RESULTS IN THEM LEARNING TOGETHER AND FROM EACH OTHER...

GETTING TO KNOW CONSTRUCTION PROCESSES AND THE FALLIBILITY OF ARCHITECTS"

Source of Data: Survey, "Design-Build in Architectural Education" with over 350 students and ex-students from various universities in Germany. (Perschmann, Budde 2021, 62 ff)

Motivation

Motivational psychology

STUD One approach of the educational theory of learning deals with the benefits that can be experienced when choosing a topic that is perceived to be interesting. "Intrinsic motivation is a construct from the fields of motivational psychology and cognitive learning theory, which says that one deals with the subject matter of something (e.g. an activity or learning matter) based on an inherent reason. This means that a connection to the material to be learned motivates the person doing the learning" (Online dictionary for psychology and education "intrinsic motivation"). This underscores the significance and importance of the correlation between the person learning and the material to be learned. Enrolling in a university and completing a course of study is generally voluntary, but all students have different goals and reasons why they study. In most cases, it is the interest in the subject and the desire to deal with it in-depth in a field in which the students can envision a (permanent) future. However, there are also external incentives and reasons that can lead to the decision to study. Each person learns differently and with varying degrees of success. However, it has been proven that intrinsic motivation, i.e. the internal motivation resulting from one's own reasons and drive, dominates the extrinsic motivation, i.e. that resulting from external incentives, and can even counterbalance various levels of knowledge and starting points with regard to prior skills and knowledge (Stangl, 2022). "Inner motivation that is based on individual reasons and goals is [...] more sustainable" (Franken 2019, 89) and therefore leads to a better learning success. If one does something as a result of an inner motivation, it turns into a type of personal satisfaction. That can also include learning or providing services. Dealing with a topic that one believes to be interesting can be fun and therefore also make the path to the goal more pleasant (Franken 2019, 92). "A great intrinsic motivation is often a prerequisite for creative accomplishments. [...] To summarize: Intrinsic motivation goes hand-in-hand with the enjoyment of the respective activity and the interest in something and therefore does not require intrapsychic triggers or promises. It is therefore autotelic [autonomous / an end in itself] and includes curiosity, exploration, spontaneity and an interest in the immediate environmental conditions" (Stangl, 2022).

"The question of whether voluntary or obligated is perhaps also the question of how one views teaching at universities." (Perschmann, Budde 2021, 247) says Professor Kampshoff of TU Berlin in an interview. Regardless of whether the current structures at universities and colleges should be questioned at this point based on the theory of learning through intrinsic motivation as well as the developments following the Bologna reform, and that it should be revisited what the goal of these institutions is as well as to which extent this development is constructive, the approach can be applied very well to the DesignBuild method.

DesignBuild distinguishes itself from conventional studios in many ways and primarily pursues another motivation of learning and teaching as well as the concept of transforming architectural education and practice.
DesignBuild projects rely on the motivation of participants and their willingness to learn and work. This is also required because these projects have to be completed and supported all the way to the end – even in the case of delays, additional expenditures and the resulting extensions. In addition, depending on the project profile, they can be more challenging than other classes, since they directly relate to reality, which always goes along with a more complex structure. The intrinsic motivation of the students, as well as the instructors, plays a major role here and fosters a group dynamic as well as the working environment. It would be impossible to implement DesignBuild

projects without an approach that offers exceptional motivation (Perschmann, Budde 2021, 229 [interview with Prof. Ralf Pasel]). The reason why this works is that the participating students are interested in these topics and consciously applied for participating in this class – often with a real application. Along the lines of the learning psychology described above, this not only increases the commitment during the execution of the projects but also the learning effect.

Obviously, there is a tremendous gain in skills that all students should receive as a result of the approach of this method. However, in the spirit of academic freedom, choosing a course should be voluntary, since obligating all students to participate would be counterproductive for the project and the working environment, and the students forced to participate would not benefit from the same learning success as a result of the lacking intrinsic motivation. The range of DesignBuild projects in architectural education should be expanded in order to "[...] provide sufficient supply and allow students to make the right choice. A department as big as that of architecture here at the TU Berlin should be expected to offer great diversity and include a sufficient number of DesignBuild projects" (Perschmann, Budde 2021, 217 [interview with Prof. Eike Roswag-Klinge]).

In light of the reasons listed here, the question of whether DesignBuild projects should be mandatory can obviously be answered with "no." The primary reason is that these projects rely on voluntary participation, the great interest and the associated dedication, and it is this approach that makes them so valuable, not just in the sense of exciting projects but also in terms of experiences and skills. Therefore, the better question is whether colleges and universities should promote the self-determination of students and their educational freedom more and rethink the approach of requiring so many classes, which is further restrained by the Bachelor's-Master's system. Because DesignBuild shows how well such an approach can work in terms of the learning psychology and how much of an asset another approach can be.

A combination of voluntarily selected DesignBuild courses together with other requirements, e.g. architecture theory, building law or construction, would be a good approach to maintain the motivation not only for the electives but also the compulsory basic courses in the form of fundamental knowledge. The result is a student-selected main focus that, due to the intrinsic motivation, promises greater dedication and an improved learning success. It would be combined with taking the required compulsory classes, which, ideally, would also be treated with greater interest due to this association, and therefore allow a sustainable increase in skills and knowledge.

DB experiences by location

52%
domestic

19%
both

29%
abroad

"IF IT IS NOT LIKE THE CONSTRUCTION SITE INTERNSHIP THAT ONE SOMEHOW SQUEEZES INTO THE SHORT BREAK, WHEN THERE ARE NO LECTURES OR EXAMS BUT RATHER IF A PART OF THE SEMESTER IS SET ASIDE FOR IT. AND THAN IT WOULD BE NICE TO HAVE A (7) SEMESTER STANDARD PERIOD OF STUDY + 1 SEMESTER CONSIST OF A DESIGNBUILD PROJECT AND/OR AN INTERNSHIP IN AN ARCHITECTURE OFFICE."

"WHEN ONE GETS THE OPPORTUNITY TO LEARN MORE, THEN ONE SHOULD TAKE ADVANTAGE OF IT! REGARDLESS OF THE STANDARD PERIOD OF STUDY"

Number of projects

43%
One project

57%
More than one project

"THE EDUCATION OF ARCHITECTS SEEMS TO BE TOO DESIGN-HEAVY TO ME."

"UNLESS THEY HAVE ALREADY COMPLETED EXTENSIVE INTERNSHIPS OR ARE ALREADY MORE INTRESTED IN ENGENEERING, YOUNG ARCHITECTS ARE THROWN INTO THE DEEP END ON CONSTRUCTION SITES, WHICH CAN EAD TO COMMUNICATION PROBLEMS AND BUILDING DEFECTS"

DesignBuild – Expectations and experiences

88%
of respondents would be willing to extend their time at university for a DB project

30%
of respondents have participated in a DB project

"PROBABLY IF I GET CREDITS FOR IT."

Source of Data: Survey, "Design-Build in Architectural Education" with over 350 students and ex-students from various universities in Germany. (Perschmann, Budde 2021, 62 ff)

Challenges

INST So far, there is no process for DesignBuild that visualises the project intentions and can be used across different projects. Erdman et al. (2002, 175) stated this quite dramatically: "Design-build activities continue to resist theorizing and critical discourse." It had often proven to be extremely difficult for them to critically discuss the projects since the successes they achieved were often described in the form of anecdotes, using the description of the empowerment of students, conveying competences or a social or community-building agenda. The advantages and utility of the projects are therefore portrayed as obvious or as not needing a critical assessment, i.e. as "privileging the irrefutable power of activity over the more reflective act of theory". The challenge is that theoretical evaluations often focus on the result of a process and not the process itself. That, however, would be required for DesignBuild according to Erdman et al. They describe this as the "ability to meaningfully integrate pedagogy with process".

Various aspects of DesignBuild that have been criticised in public will be summarised in the following section.

Dealing with failure

INST The discrepancy between the public portrayal and real use and impact is certainly a general phenomenon of architectural education. In an interview, Prof. Dr. Düchs responds: "The history of architecture is filled with failed projects but there is hardly any 'pathology' of architecture. This means that hardly anything is learned from the 'dead' projects" (Perschmann, Budde 2021, 234 [Interview with Prof. Dr. Martin Düchs]). Significant differences between described and actual use can also be seen in the description of construction projects that came to be by conventional means. However, due to the special way in which DesignBuild projects are initiated and implemented, they are subject to different contexts and constraints. A type of utilisation that does not materialise is often more immediately and apparently visible than in the case of conventional projects. In the public, however, it is very rarely communicated and discussed as a (partial) reason for a failure. The outcomes of the projects are, for the most part, portrayed in a positive light. This, however, does not take into account that learning from mistakes is quite important as an educational tool and for further developing separate DesignBuild activities (Freear 2017; Hartig 2017).

One reason for this is certainly that peer recognition (Grubbauer 2017, 796 ff.) is a desired result. This primarily concerns aspects that play an important role in the steady continuation of the projects as well as the career of the participants. For example, a majority of the projects was only able to be implemented with the help of supporters who provided material or financial assistance, since the actual construction costs are most often neither solely carried by the academic nor the non-academic partners. Here, too, it is about (at least partially) covering the additional costs that are accrued by the core team, e.g. travel expenses. In addition to the financial component, the execution of the projects is also made possible in the first place by supporters and volunteers who provide assistance in the building trades / construction, logistics / administrative and technical support areas. Openly dealing with the experienced difficulties or even a failure, including partial failures, is often viewed as a problematic loss of image that could stand in the way of securing material and non-material resources for future projects (Grubbauer 2017, 797). Openly dealing with failure also appears to be related to whether the work of a DesignBuild studio has already been developed to a certain degree. This is evidenced by the fact that, it is primarily the studios that have been active for a longer time, like the Yale Building Project, Rural Studio or CoCoon-Studio that are broaching the issue of learning from mistakes in publications (Hayes 2007; Freear u. a. 2014; Hartig 2017).

Another reason for the discrepancy between the publicly portrayed and actual use is that the projects, in the way they are initiated and implemented, are a vehicle for a specific attitude in the field of architecture that is sought after by the media. This becomes clear in the so-called "social architecture debate" (Gribat und Meireis 2017, 779 ff.), which is increasingly widespread and therefore evidence that a change of traditional architecture attitudes is sought. DesignBuild projects, with their proclaimed participatory, small-scale approaches and the use of local building materials and neo-vernacular construction methods, are used frequently in this regard. They demonstrate a form of engagement – both verbally and visually – that can be used to underscore and support the topics that were broached. However, an accounting of how the intentions of a "social architecture" really resonate does not happen as part of this debate.

The integration into the academic system

INST With their call for change, DesignBuild projects are looking to blaze new trails as part of an established teaching tradition – although partially deviating from its methods, formats and attitude. Among these deviating aspects are the collaborative work and therefore also how to deal with authorship, the type of construction task and the self built implementation. However, by using these aspects as part of the teaching experience, the critiques and challenges which show that turning away from a conventional design studio could also lead to a diminished quality in architectural education are articulated as well.

One criticism is the limitation of the creative design process by restricting the scope resulting from collaborative working methods. This not only refers to the cooperation within a studio but also with real and non-academic cooperation partners. However, DesignBuild studios are working almost exclusively with non-academic players and, through their approach, accelerate a collective process of gaining insights from the knowledge of laypersons and experts alike. Due to this cooperation, there are additional parameters and design-related decision-makers that have to be taken into account when teaching. There are a few studios, such as the Yale Building Project or URBANbuild, that, as a reaction to the complexity of these processes, are limiting the collaboration with the future users of the projects to a minimum for teaching purposes. A close cooperation within the core teams, however can be found in all DesignBuild studios, regardless of the degree to which the instructors are involved in the projects. This also impacts the issue of authorship, which, in most cases, can no longer be limited to one or a few people. The reason is that, unlike in conventional design studios, decisions are not based on one's own considerations but in close coordination with others.

The planned, self built implementation and the associated underlying financial and time constraints are another aspect that are perceived to be limiting a creative design process. Especially when it is about blazing new trails. For example, parameters such as the selection of the building materials, the type of construction, its size and details may all strongly depend on whether the implementation is possible within the structures imposed by the curriculum. This type of criticism, which describes these constraints as limitations to creative possibilities and architectural quality, is, however, dispelled by those who highlight these limitations as a central aspect of the projects. This is how Peter Schreibmayer (2009, 58) describes his attitude toward external constraints: "If it is true that shape is the interplay of constraints, then constraints are also the sources from which architecture gets its shape. The difference between what constraints demand and what they permit is the space in which – in the best case – creativity and the will to design turn a building into architecture".

"1. PRACTICAL EXPERIENCES, EXPERIENCES WITH MATERIALS.

2. DESIGNING WITHOUT BUILDING ONLY OFFERS A TINY GLIMPSE INTO THE IMPLEMENTATION AND THE CONFIRMATION OF WEATHER THE PLAN WORKS, AS WELL AS A LIMITED GLIMPSE INTO THE ACTUAL FIELD OF WORK: LOGISTICAL, CONSTRUCTIV PROBLEMS IN THE IMPLEMENTATION PHASE AND THEIR SOLUTIONS.

3. STUDYING PROJECTS WITH OTHERS IN ORDER TO GET TO KNOW THEM."

"EXCHANGE WITH OTHER CULTURES
PRACTICAL APPLICATION,
OF THE ACCUMULATED KNOWLEDGE."

"APPROACHING
ARCHITECTURE
FROM ANOTHER
VIEWPOINT"

"DEALING WITH THE DIMENSIONS AND THE EFFECT OF ARCHITECTURE ON OBSERVERS"

"BETTER INTERLOCKING OF DESIGN AND CONSTRUCTION TO 'THINK TOGETHER' FROM THE START."

"GETTING TO KNOW ARCHITECTURE IN PRACTICE UNDERSTANDING ON AN ENTIRELY DIFFERENT LEVEL HOW ARCHITECTURE IS MADE (MATERIAL PROPERTIES, DETAIL PLANNING, ...) AND I ALSO LIKE TO WORK WITH MY HANDS."

What motivates you to participate in DesignBuild?

PART 1/4

"DOING IT YOURSELF. THE CRAFT OF BUILDING. I ALSO GET THE FEELING THAT FICTITIOUS DESIGNS ARE DRAFTED DIFFERENTLY THAN REAL ONES"

Source of Data: Survey, "Design-Build in Architectural Education" with over 350 students and ex-students from various universities in Germany. (Perschmann, Budde 2021, 62 ff)

Scientific recognition and grades

INST Curricular structures are components of DesignBuild projects that have a major influence on the tasks at hand. In order to achieve the desired output, the result is often a semester curriculum and schedule that offer little flexibility with regard to time and contents. For instructors and administrative staff, this often requires a substantial extra effort that goes beyond the obligations of their employment contracts. The resulting difficulties are especially felt by the scientific non-professorial faculty, whose members are usually hired for a specified period with a specific qualification objective and are usually responsible for much of the teaching. This requires a high degree of scientific commitment and output from the instructors. It is a major challenge to reconcile this with the extraordinary effort required by most DesignBuild studios. Another complicating factor is that the implementation of the projects has, up to now, rarely been recognised as a type of precisely this form of recognition (Verderber, Cavanagh, und Oak 2019).

Another aspect that plays a critical role in the context of this form of scientific recognition through DesignBuild is the often-described cooperation with non-academic collaborators. The result can be interdependencies that make it more difficult to strive for the objectivity that plays a central role in the traditional understanding of science. This especially applies to the cooperation between the future users and the connectors[9] who strongly shape the projects with their own intentions and interests. However, it should also be noted in this regard that the different perspectives can also contribute to the type of intersubjectivity that is prevalent in a modern understanding of science. To achieve it, young scientists in particular, as well as the students, have to apply the proper tools of critical reflection.

9 e.g. NGOs, Institutions, engaged individuals, ↗ p. 111

An additional difficulty in the context of scientific recognition that should be mentioned here is the recognition of the contributions of students in the form of a grade that is usually obligatory in a university system. The way in which authorship is handled, which makes a clear assignment impossible, also makes it difficult to assign grades using the products of work processes. Instead, it is the development process itself that shows the differences between students. It is often not apparent and therefore also more difficult to evaluate. Sara (2004, 163) also concludes that, in a learning process that is geared toward independence as strongly as DesignBuild is, students should also be required to assign individual grades themselves. In that case, it can then obviously conflict with their self-interest. Furthermore, it remains to be seen whether such a process would meet university regulations. In addition to the question of ownership, the understanding of the different roles within the core team of DesignBuild projects is another issue that makes grading difficult. In terms of the project method, the instructors in DesignBuild projects often act as experts, supporters or moderators that allow autonomous learning. This, however, in large part conflicts with the dominant role of those who have to assign grades. Since it is the instructors who are the only ones allowed to evaluate processes and products, a hierarchical role structure will never be fully dissolved.

The potential conflict between gift and participation

INST Patricio del Real (2009, 123 ff.), in his article 'Ye shall receive', uses the practice of the Rural Studio to tackle the implications that arise from DesignBuild projects usually being free to those who will use them in the future. He uses the term 'gift' – "the gift of Architecture" – and refers to the sociologist Marcel Mauss and his theory of the gift economy or also the culture of gifting. Mauss views gifts as a form of the economy that connects people through a system of exchanges on which mutual trust is built. Therefore, gifting is

based on a social relationship that requires constant validation. As a result, it is different from the exchange of goods, in which all mutual obligations and connections are concluded with the transaction. DesignBuild studios operate in the space in which, on the one hand, the responsibility for the completed building projects largely rests with the future users while, on the other hand, the system of gifting could also result in social dependencies and possibly hierarchies. Against this backdrop, Del Real (2009, 125) is particularly critical of the architectural ambitions associated with academic studies: "The relentless quest for architecture is a dynamic set in motion by the educational requirements and the manic celebration of innovation and experimentation". He especially highlights the experiments with different renewable materials with which the Rural Studio became known in its early years. The use of such materials during construction (such as carpet tiles, license plates or windscreens) is portrayed in public as the "original use of innovative building practices and unconventional use of materials". In reality, however, it is neither truly valued by economically poorer nor richer demographics. In addition, it takes real technical expertise to use these materials in a building and is therefore not reproducible afterwards. Del Real therefore questions whether DesignBuild studios, in the form in which they are usually operated, can be participatory at all (as many of them claim to be): "With full participation comes contestation and active resistance, and with this a more challenging negotiation, one that is sceptical of any gift".

Now, ten years after Del Real's article was published, it should be noted that the cited Rural Studio has discontinued many of the criticised practices. For example, over the past several years, the focus has been on the use of materials that can be found in any hardware store. While part of the emphasis remains on creating the design, it has recently been surpassed by finding detailed constructional solutions that not only meet the aesthetic and technical requirements of the projects but can also be handled by local construction companies.

Conclusions for DesignBuild that are important in general can be derived from the development of the Rural Studio, which served as an example and was also the target of the criticism described above. In conventional projects, while a client picks and contracts an architect and pays for an architectural service (and therefore it is also apparent that the client defines the task), the implementation of DesignBuild projects is much more complex. Design-related ambitions on a tight schedule that is dictated by the curriculum are additional determining factors for the projects. This still requires sensitive handling, even when the projects are not funded in a traditional way. Because, just as in the case of conventional projects, it is the future users who, according to most DesignBuild studios,need to assume the responsibility for and ownership of the projects.

Social engagement and non-open-ended processes

INST In the preface of The Routledge Companion to Architecture and Social Engagement (2018, xxvi), Jeremy Till describes his attitude toward the connection between architecture and social engagement: "To talk of socially engaged architecture is surely to talk of a given. All architecture is socially engaged. Period." Architecture is meaningless without the engagement or the participation of those involved in its production or use. And engagement is social by definition because it depends on interpersonal interaction. However, the history of architecture has by no means been told using these human interactions – the social ones. Instead, it is much more about the product and the myth of genius. That not only delegated the social aspect to the background but also the political.

Recently, the social aspect has been increasingly recognised again through the so-called "social architecture" debate. A link to the ever-increasing spread of DesignBuild can certainly be established in this area, such as the 'Think Global, Build Social' exhibition and publication. In many exhibitions and

"COMBINING IDEAS AND THEIR IMPLEMENTATION AND I FIND IT FASCINATING TO DEAL WITH THE PROBLEMS AND CHALLENGES THAT ARISE"

"I AM A BIG PROPONENT OF HOLISTICALLY IMPLEMENTED PROJECTS AND AM ALWAYS HAPPY WHEN A DRAWING TURNS INTO A REAL OBJECT. IN ADDITION, THIS ALLOWS THE (AT TIMES ABSTRACT) FORM OF STUDYING TO BE OVERCOME AND ONE IS CONFRONTED DIRECTLY WITH THE GOOD + THE BAD PARTS OF ONE'S OWN DESIGN.

BY WORKING ON SITE, PEOPLE CERTAINLY DEVELOP A DIFFERENT UNDERSTANDING OF THE VERNACULAR, WHICH I BELIEVE TO BE A VERY IMPORTANT COMPONENT OF DESIGN AND EXECUTION."

What motivates you to participate in DesignBuild?

PART 2/4

"THE OPPORTUNITY TO GET PRACTICAL EXPERIENCE AND BEGINNING A CAREER WITH FEWER INHIBITIONS"

"I BELIEVE THAT I WOULD BE ABLE TO LEARN A LOT FROM A HANDS-ON PROJECT WHICH COULD BENEFIT MY DESIGNS AND MY GENERAL UNDERSTANDING OF ARCHITECTURE. THAT IMMEDIATE CONNECTION TO REALITY IS OTHERWISE LACKING FOR A LONG TIME."

"DIRECT PRACTICAL CONNECTION TO PREVIOUSLY LEARNED METHODOLOGIES AND DESIGN TASKS, CLOSE EXCHANGE BETWEEN STUDENTS AND TEACHERS, POSSIBLE PLACEMENT ABROAD, ETC"

"GETTING TO KNOW OTHER AREAS BETTER"

"BEING ABLE TO DIRECTLY IMPLEMENT THE DESIGN. BEING ABLE TO EVALUATE REAL RESULTS AND - MOST IMPORTANTLY - NOT WATCHING PROJECTS DISAPPEAR IN DESKS OR THE RUBBISH BIN AT THE END OF THE SEMESTER.

THIS MEANS THAT THE WORK IS DONE WITH GREAT PERSONAL INVESTMENT HAS VALUE BEYOND ONE'S OWN GRADE POINT AVARAGE."

Source of Data: Survey, "Design-Build in Architectural Education" with over 350 students and ex-students from various universities in Germany. (Perschmann, Budde 2021, 62 ff)

publications, it was largely small-scale projects in different contexts that were presented to a global audience. Lepik (2010, 12), the curator of the central publication and exhibition Small Scale Big Change in the MoMA, describes the overarching goal that the projects share as follows: "[The projects] offer a redefining of the architect's role in and responsibility to society". However, the debate in the aforementioned publications was criticised by Gribat and Meireis (2017, 779 ff.) as being based on a "rather limiting and naive assumption". The scope of architects to do good is reduced to merely designing and building for the right people, i.e., marginalised and underprivileged demographics and not the actual transformational potential of architecture in terms of a spatial agency. It cannot be mobilised by merely selecting the "right" users. Instead, it has to take into account more far-reaching implications and basics. This would require an approach that integrates the many relevant scientific and theoretical backgrounds that can be found in the relevant specialist literature, and that therefore operates in a multi-disciplinary manner. According to Gribt and Meireis (2017, 785) this would help with questioning the "project-fixation of the current debate and the inherent idea that architects and their projects alone have the power to change the world". Ultimately, this would also mean that the construction-related solution is not necessarily the best or correct one. Even if "[...] the most difficult thing for architects to do is nothing" (Perschmann, Budde 2021, 234 [interview with Prof. Dr. Martin Düchs]) And this is precisely the challenge for DesignBuild projects since it is the realisation of a built project that is of significant importance for them. This means that, from the point at which they begin their work in a certain context, the result of the process – at least in part – has to be considered to no longer be free from bias.

This allows various conclusions to be drawn in addition to the aforementioned reference to multi-disciplinary approaches. For example, the criticism referred to above emphasises the phase of the process that takes place before the actual DesignBuild Studio work as part of the curriculum begins. It emphasises the central role of cooperation partners, such as the connectors or the future users, and justifies a careful handling of their selection. The decision of carrying out a DesignBuild project always means becoming a part of a system of actors and therefore to also intervene in that system.

Another conclusion resulting from the previous consideration and directly related to it is the suggestion to increasingly pursue non-traditional methods in these projects. Del Real provided an example of this, which was then also picked up on by Graham Owen (2017). It concerns the fact that many DesignBuild studios in the USA focus on the construction of single-family homes. As part of a long-term commitment, it would make sense to also consider other types of housing, such as collective housing.

Constructional and spatial quality questions

INST 21 % of the DesignBuild projects published on the dbXchange.eu platform were deemed to be "experimental" (regarding the method of construction) by those in charge of the projects. Together with the aspiration to use unconventional and / or recycled construction materials and to allow a major share of the construction to be completed by construction novices, it can be concluded that the quality of the construction of the completed project is not necessarily ensured. In addition, as a result of the non-conventional constellations in which projects are completed, the liability claims of the clients that are standard in the building industry are also missing. That is why some DesignBuild Studios are reaching corresponding agreements with the relevant cooperation partners (i.e. connectors and the future users) that deal with rectifying any potential constructional deficiencies. Work for which a warranty claim is relatively urgently needed, such as electric, gas or water installations, is often outsourced to specialists. Insurance-related questions are another challenge for

the completion of the projects. At North American universities, where DesignBuild is more common now than in Europe, there are specific provisions that are partially regulated. For example, at Dalhousie University in Halifax, during the construction phase, there is a standardised routine each morning that provides information on the dangers of working with tools and makes visitors or volunteers sign a corresponding declaration. European DesignBuild studios, on the other hand, still seem to keep searching for the right insurance-related solutions from one project to the next.

The restrictive corset of curricular structures also makes it necessary for the timeframe for the construction, and therefore also the quality of the execution, to be limited by fixed start and finish dates. In the case of projects where the construction site is not very close to the university at which the DesignBuild studio is based, the scheduled travel dates are another complicating factor. This non-existing flexibility with regard to the schedule may conflict with the actual skills of participants, their physical condition, supply times of building materials or other unforeseen challenges during the construction process. That is why projects are often facing the challenge of the completion phase, which is then either handled by local craftspeople, NGOs or a small group of students. This is exponentially more challenging in the case of projects in which experimental building approaches are pursued that would even be challenging for experts or could only be completed with great financial difficulties.

In addition to the constructional experiments, some projects also feature spatial-experimental approaches that, as opposed to conventional projects, are made possible by the special constellation of actors. Here, too, the people in charge often face the question of who will provide professional support for the completion or any required constructional changes. If this role is not filled by the DesignBuild studio itself, then it is often assumed by the connectors, such as NGOs or Initiatives.

Going global

STUD One of the most common criticisms of DesignBuild is that they are operating globally when it comes to international projects. This criticism includes both the moral-ethical as well as the environmental implications of the projects and builds on post-colonial theories. Many criticisms that are part of this discussion are similar to the points made above or implied: the contradiction between gift and participation, non-open-minded processes and maintaining constructional and spatial quality. However, they receive an additional level of relevance by working across national borders. It is about imbalances of power in which European students travel to countries in the southern hemisphere to build there. In many cases, economical aspects are also invoked in this context. For example with regard to the long-term impact of measures that could be taken with the economic ressources used for air travel.

About half of the DesignBuild projects initiated in Europe are carried out in the Global South (Pawlicki 2020, 30). These projects have undergone major changes over the past decades. "Back then, we got going with a bundle of cash and a lot of enthusiasm. [...] I think we are positioned completely differently now. Our work is much more contextualised than back then" (Perschmann, Budde 2021, 217 [interview with Prof. Eike Roswag-Klinge]). Still, the method needs to be discussed from a neo-colonialist point of view. "DesignBuild projects have a colonial taint in that First World citizens travel to Third World countries to construct schools or other buildings. Decades after nearly all colonies have fought for or have been granted their independence, the accusation of colonialism remains: Following an era of decolonisation, we do not live in a time of post-colonisation but rather in one of neo-colonisation (Ziai 2012) Part of it is certainly also that "[...] practically nothing has changed in terms of the economic and political dependence" (Whywar Friedensbüro Salzburg, "Colonisation"). At the latest since the post-colonial criticism, as well as the post-development criticism and the work of

"I BELIEVE THERE WILL BE MAYOR LEAPS IN KNOWLEDGE FROM IMPLEMENTING A DESIGN PROCESS EARLY ON IN ONE'S ARCHITECTURAL CAREER."

"PRACTICAL EXPERIENCE, NEW INSIGHTS THAT ARE NOT ALWAYS AVAILABLE TROUGH CONVENTIONAL STUDIES."

"IMPLEMENTING A DESIGNED PROJECTS INTRODUCES A DIFFERENT DIMENSIONS OF DEALING WITH ARCHITECTURE TO YOUR EDUCATION AND THE EXPERIENCE OF THE IMPLEMENTATION OFFERS A DIFFERENT UNDERSTANDING OF MATERIALS AND COSTS."

"COMBINING THEORY AND PRACTICE IN THE PROTECTED ENVIROMENT OF EDUCATION"

"GAINING PRACTICAL EXPERIENCE. BUT, ABOVE ALL, WHAT APPEALS TO ME IS THE INFLUENCE OUR ENVIROMENT WITH A PHYSICAL INTERVENTION AND TO OBSERVE HOW PEOPLE INTERACT WITH THE BUILD SPACE"

"IN ORDER TO GAIN A MORE PROFUND UNDERSTANDING OF CONSTRUCTION A PRACTICAL IMPLEMENTATION OF A PROJECT HAS TO TAKE PLACE. IT IS NOT POSSIBLE TO TOTALLY UNDERSTAND THE BUILDING PROCESS IF IT IS ONLY DEALT WITH IT THEORETICALLY"

What motivates you to participate in DesignBuild?

PART 3/4

"SUSTAINABILITY. LIMITED/EXPANDED OPPORTUNITIES TO USE DESIGN AND CONSTRUCTION"

"THE HOLISTIC EXPERIENCE OF ARCHITECTURE. ACADEMIC STUDIES ARE VERY THEORETICAL IN NATURE AND I BELIEVE THAT GETTING SOME PRACTICAL EXPERIENCE AT UNIVERSITY INSTEAD OF JUST DRAFTING PRETTY DESIGNS BETTER PREPARES STUDENTS FOR THEIR PROFESSIONAL CAREERS. AND THAT CERTAINLY FOSTERS A TECHNICAL UNDERSTANDING OF ARCHITECTURE."

Source of Data: Survey, "Design-Build in Architectural Education" with over 350 students and ex-students from various universities in Germany. (Perschmann, Budde 2021, 62 ff)

Wolfgang Sachs 'On Earth as it is in the West. A polemic manual on development policy', development cooperation consistently has to be confronted with allegations of Eurocentrism (Ziai, Müller, 2015). This especially becomes a problem when one is aware of this and if the assessment takes place on the basis of one's own norms as well as an assumption of superiority (Ziai, Müller, 2015), without having the sufficient background information. For example, with regard to DesignBuild that refers to the assessment and evaluation of construction methods, methods of working, types of living, etc. The claim of DesignBuild projects is that they create an exchange of knowledge in all directions and prevent the blind importation of one's own building culture. Still, that often begs the question if and how "[...] an exchange of knowledge from building culture to building culture and building practice to building practice can take place [...]"? (Talk "DesignBuild in architectural education) "Development cooperation, which cannot face this accusation, is only conceivable if the underlying structures change. The assumption that there is a problem in other (developing) countries that can only be solved with our expertise is related to the attitude that our own social models are not questioned. This gets in the way of the basic structures of development cooperation and, first and foremost, requires a change (Augsburg Postcolonial – Decolonize Yourself, 2018).

It is not difficult to recognise the scope of the complexity of this topic, as well as which overlaps one should recognise and observe in connection with international DesignBuild projects. The topic remains a constant companion of DesignBuild projects. However, DesignBuild also offers the opportunity to create another type of cooperation if the initiators are very sensitive to this.

Conclusion Challenges

STUD+INST The oft-mentioned theories of Dewey, which should be considered to be fundamental in terms of a teaching method for DesignBuild, in their core contain the message that ideas should be evaluated based on their real outcomes and not their intentions. The aforementioned points demonstrate the fractures between intention and reality that can open up in the case of DesignBuild projects: A public portrayal that does not correspond with the actual use, the challenges of the integration into an academic system and at the intersection between an academic and non-academic world. These fractures are not necessarily being viewed as failures, but rather as a challenge and part of learning. "Failure is a powerful teacher", as it says on the website of the Rural Studio. Still, the handling and definition of failure is highly relevant since DesignBuild studios are part of initiating the projects and therefore also symbolise a different type of responsibility. Elements and consequences of failure therefore have to be taken into consideration holistically in terms of the interface position of DesignBuild.

Through the built manifestation and the collaborations they are undertaking, DesignBuild projects are necessarily intervening in an existing system of stakeholders. The role of the collaboration partners is therefore of central importance in order to be able to achieve the intended outcomes in the first place.

"THE EXPERIENCE OF WHAT ARCHITECTURE AND CONSTRUCTION LOOKS LIKE FAR REMOVED FROM CLASSIC ARCHITECTURE EDUCATION"

"I BELIEVE THAT I WOULD BE ABLE TO LEARN A LOT FROM A HANDS ON PROJECT, WHICH COULD BENEFIT MY DESIGNS AND MY GENERAL UNDERSTANDING OF ARCHITECTURE THAT IMMEDIATE CONNECTION TO REALITY IS OTHERWISE LACKING FOR A LONG TIME"

What motivates you to participate in DesignBuild?

PART 4/4

"FINALLY SOME PRACTICAL EXPERIENCE"

"WHILE STUDENTS HAVE TO DESIGN AND, AT SOME POINT, ALSO COMPLETE A CONSTRUCTION SIDE INTERNSHIP, THE TRANSFER FROM DESIGN TO THE FINISHED OBJECT IS COMPLETELY MISSING IN EDUCATION."

"THAT WOULD PRIMARILY BE SELFISH REASONS SUCH AS THE PERSONAL LEARNING EFFECTS, THE GROUP DYNAMICS, BUT ALSO THE HOPE OF BEING ABLE TO DO WELL WITH MY WORK."

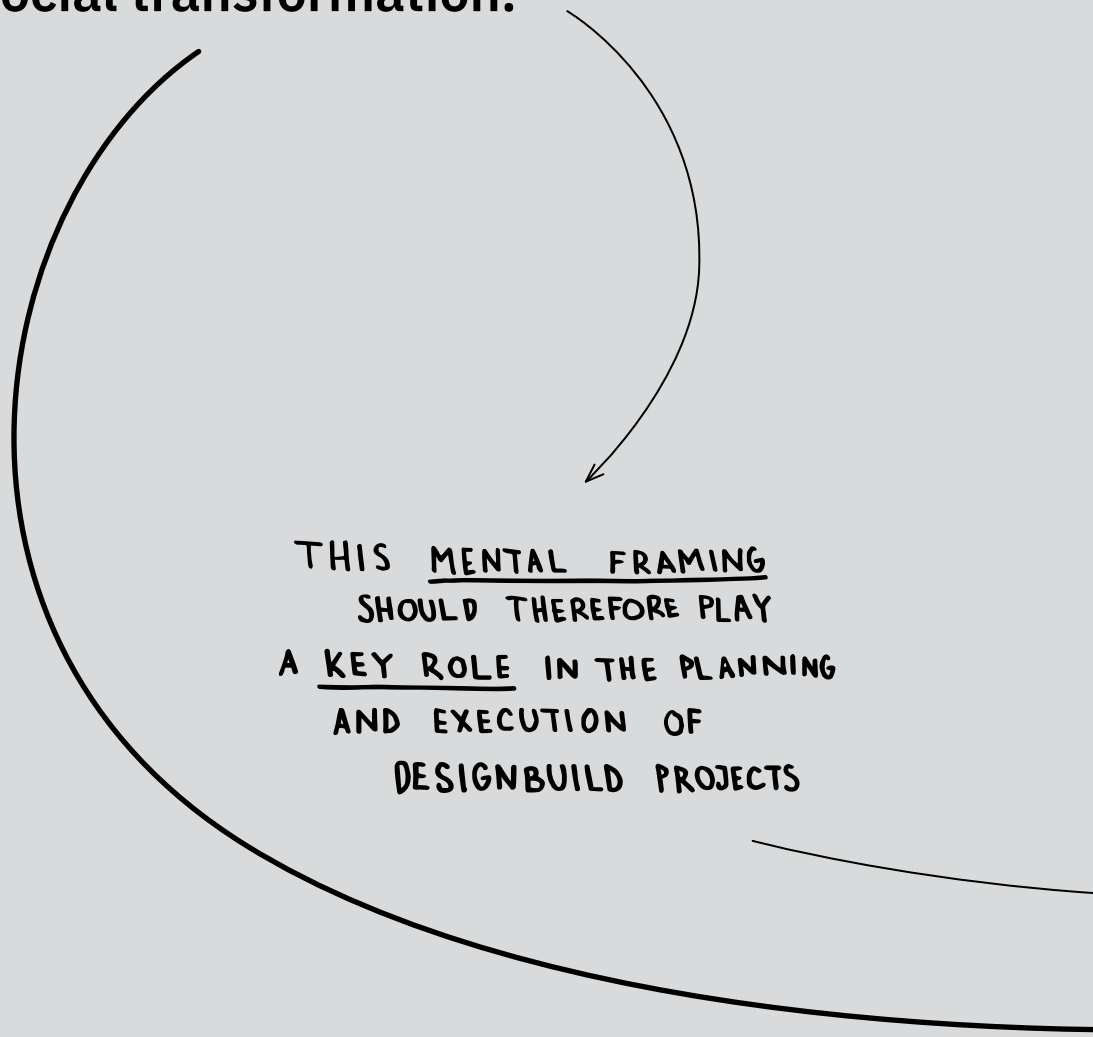
"DIFFERENT APPROACHES AND PRACTICAL IMPLEMENTATION YOU THINK BEYOND THE TAUGHT DESIGN PROCESS AND LEARN A LOT MORE ABOUT MATERIALS"

"BETTER INTERLOCKING OF DESIGN AND CONSTRUCTION. MORE CONSIDERATION FOR THE SOMETIMES DIFFERENT PERSPECTIVES. FEWER ERRORS IN THE FINAL RESULT SINCE CONSTRUCTION-RELATED QUESTIONS WERE GIVEN GREATER WEIGHT FROM THE START. ON THE OTHER HAND, STAYING MORE TRUE TO THE DESIGN SINCE THERE IS NO NEED TO CONSTRUCTIONALLY DEVIATE FROM THE DESIGN LATER ON."

"COMPACTLY CYCLING THROUGH ALL IMPLEMENTATION STEPS"

Source of Data: Survey, "Design-Build in Architectural Education" with over 350 students and ex-students from various universities in Germany. (Perschmann, Budde 2021, 62 ff)

Work phase 0 (the phase before the embedment of the project in curricular structures) and the reflection phase are an immanent aspect of the process of each DesignBuild project and therefore a key factor for achieving the goals of the project in the areas of architectural education, production and social transformation.



Triangular interrelation

ON A LARGE SCALE,
IT CONTRIBUTES TO THE LEARNING SUCCESS,
TO LEARNING FROM ONE ANOTHER
AND THEREFORE THE FURTHER DEVELOPMENT
OF THE DESIGN BUILD METHOD

ON A SMALL SCALE,
IT HELPS TO DEFINE
EXPECTATIONS AND GOALS,
TAKE A CLEAR POSITION
AND TO BE AWARE
OF ONE'S OWN ROLE AND
ALLOW A REFLECTION
ON THE INTENTIONS.

Hypothesis

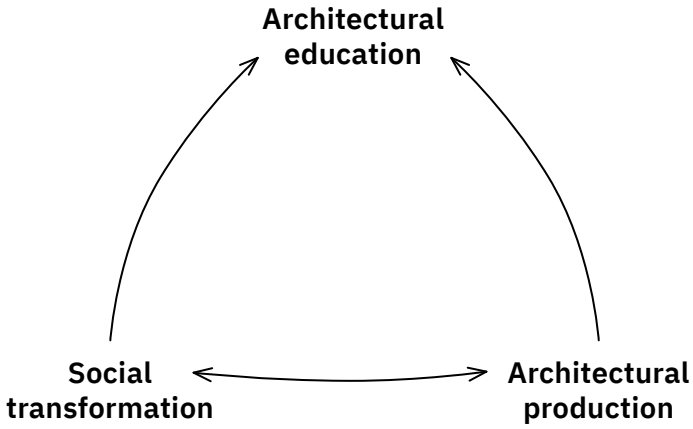
STUD+INST In the previous parts of this publication, different approaches were demonstrated that were instrumental for the founding of the studios during the development of DesignBuild. Its nuclei – the architecture schools – have always been places where discourses on architecture were formulated and disseminated (Ockman 2012, 32). Since architectural education, as opposed to many other types of university education, is practice-oriented and geared toward achieving the Chamber of Architects certification, it seems desirable that, building on this discourse, it is continuously refined with regard to work experience. In addition, due to the historically close connection of education and practice, architectural education also plays a special role as a driving force in the design of built environment (Crinson und Lubbock 1994, 1 ff.).

However, fractures can be detected upon a closer examination. For example, in 'The Architect: Chapters in the History of the Profession', his oft-cited history of the architecture profession, Kostof determined all the way back in 1977 that a small part of the design of built environment can be traced back to architects: "Through the centuries, only a fraction of the built environment has ever been affected by the architectural profession"(Kostof 1977, 3). He believes that the reason is that architects are traditionally only associated with the world of the rich and powerful. "[...] [The] tendency is that architecture primarily presents itself in glossy magazines. [...] That does not make architecture appear to be very social. [...] In the design, I also see an increasing movement toward the people who can afford it. [I see the risk] [...] that the building culture does not impact the masses but rather that, generally, purely economic criteria tip the scales. Economic constraints determine how people live, which means as cheaply as possible" (Perschmann, Budde 2021, 218 [Interview with Prof. Dr. Martin Düchs]). In the introduction of 'Architecture: art or profession?', Crinson and Lubbock also argue that the influence of architects on the design of our built environment seem to be the determining force at first glance. However, a historical examination shows that this must also be observed in a more differentiated manner. They conclude that architects actually did have a major influence for a period of 25 years from about 1950: "Architects were very powerful" (Crinson und Lubbock 1994, 1). Apart from that, however, they describe architecture as a "weak profession" (ibid.), that is occupied in large part with protecting itself from external influences. From this point of view, it continued to develop (and is developing) its educational system at the same time. As external influences, they are referring to the different stakeholders participating in the construction process, such as the building owners, owners of the property, developers, engineers and other specialist planners, craftspeople, companies and financing partners as well as factors such as building laws and potential specifications but also the existing constructional and social context. From this perspective, an image of architecture as a self-referencing profession emerges (Crinson und Lubbock 1994, 1 ff.; Till 1996).

As a result, this raises the question regarding its relevance in society as a whole. This is a discussion that has been addressed in exhibitions and publications, such as Design for the other 90 %, Spatial agency, Small Scale, Big Change: New Architectures of Social Engagement, Expanding Architecture: Design as Activism or Design Like You Give a Damn and many others.

We as authors share the desire (which is sometimes formulated as a demand) with DesignBuild stakeholders that architectural practice has to be rethought and emphasise the social engagement of architectures. It should also be noted at this point that, in response, the voices critical of the current so-called social architecture debate are increasing and they demand a critical analysis and the placement into a wider, scientific-theoretical discourse (Gribat und Meireis 2017; Richter, Göbel, und Grubbauer 2017; Schneider 2018).

As can be seen from the previous description, the intersection between education and practice is imminent in architecture. For DesignBuild, it is even more present since, in this case, the aspiration per definition is that building is part of architectural education. This also creates another interface as a connection into the non-academic world, i.e. into society. On the one hand, this takes place through a transdisciplinary approach and the cooperation with collaboration partners from non-academic fields. And on the other hand, this connection is also demonstrated through the direct and indirect consequences of what is built or designed, as well as its context, which is usually found away from the university campus.



This means that DesignBuild studios become agents at the intersection of architectural education, practice and society, and they face new requirements that lead to the development of new methodological approaches that are different from those of conventional architectural education and practice.

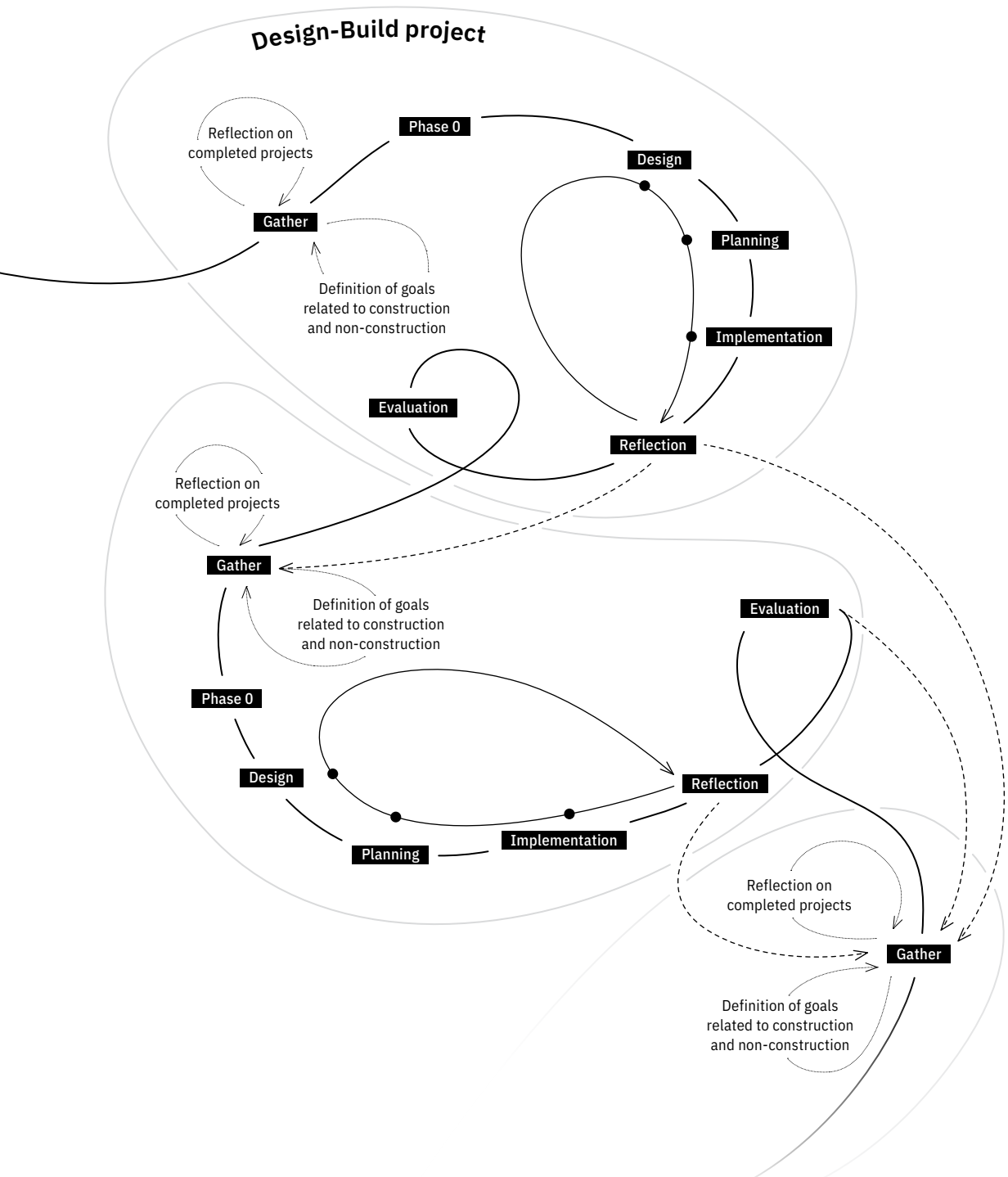
Work phase 0 (the phase before the embedment of the project in curricular structures) and the reflection phase are an immanent aspect of the process of each DesignBuild project and therefore a key factor for achieving the goals of the project in the areas of architectural education, production and social transformation. This mental framing should therefore play a key role in the planning and execution of DesignBuild projects. On a small scale, it helps to define expectations and goals, take a clear position, and to be aware of one's own role and allow a reflection on the intentions. On a large scale, it contributes to the (learning) success, to learning from one another and therefore the further development of the DesignBuild method.

STUD The lack of time in the university's semester structures sadly often leads to some phases of DesignBuild projects to be rushed or even omitted altogether. This especially applies to the issue of reflection. 52 % of respondents in the "DesignBuild in architectural education" (Perschmann, Budde 2021, 36) said that there was no reflection or that they would have liked more time for it. 22 % said they would have liked more of an exchange in that regard (idb.) "Unfortunately, the evaluation is often not given enough weight" or "reflection often comes up a bit short or is pushed back, and I believe it should also happen during the other phases" (Perschmann, Budde 2021) are statements from students that are often made following such a project. Prof. Eike Roswag-Klinge confirms in an interview: "From my own practical experience, I know that there is too little reflection and most participants are not self-critical enough" (Perschmann, Budde 2021, 218).

An opportunity is created with work phase 0 to increasingly think about one's own motivation and focus and to consciously place it (Perschmann, Budde 2021, 135). This exemplifies the approach of beginning the process by establishing one's own learning objectives. In order to counteract the creation of a false understanding of dependencies and consequences among participants as a result of a schedule that is too tight, enough time has to be allocated when organising a DesignBuild project so that all phases can be properly and carefully carried out. In order to establish a reflective culture of mistakes, the framing of the theory – the theoretical foundation as well as an accompanying and final reflection – has to be executed properly. This allows processes as well as the learning and teaching behaviour to be optimally analysed, documented and internalised. "The history of architecture is filled with failed projects but there is hardly any 'pathology' of architecture. Hardly anything is learned from the projects that 'died'" (Perschmann, Budde 2021, 218 [Interview with Prof. Dr. Martin Düchs]). The establishment of a solid structure in an academic context is viewed as an opportunity that can span all projects, ensure an improved comparability, and therefore lead to the continuous improvement of the method and its implementation.

"That architectural education develops the capacity in students to be able to conceptualise, design, understand and realise the act of building within a context of the practice of architecture which balances the tensions between emotion, reason and intuition, and which gives physical form to the needs of society and the individual. [...] This education must maintain a balance between theory and practice" (UIA 2011, 5). This quote from the UNESCO / UIA Charter describes the goals for the education of architects.
A big part of the added value of the DesignBuild

Idealised project cycles and linkage of DesignBuild projects.

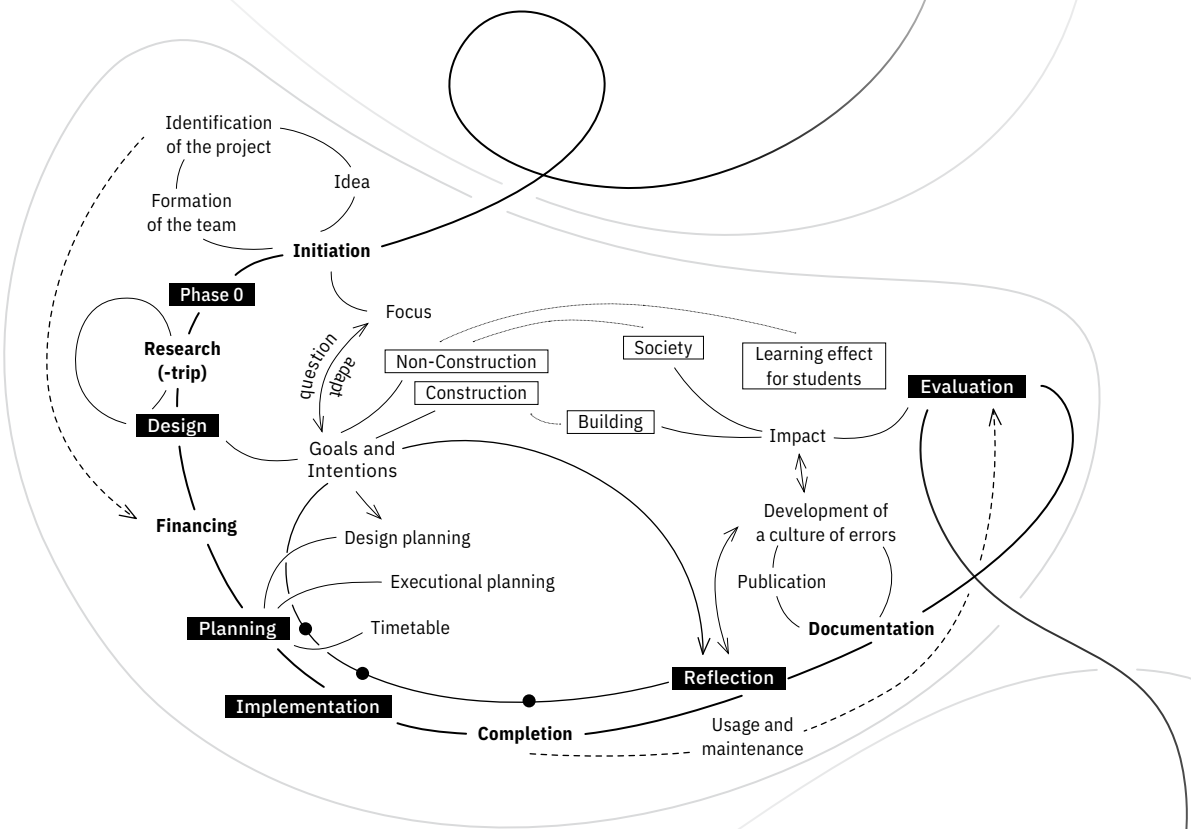


method is to directly connect the design, planning and implementation of a project, which can lead to a comprehensive understanding of the mutual links between – and effects of – the different phases of an architecture project. This realisation broadens one's own understanding of architecture, as well as its scope, and lastingly shapes young architects. In the current, classic architectural education, this is contrasted by the semi-annual work on a design that occasionally but not routinely is supplemented by other classes which provide a greater depth to the design from a constructional, technical or construction-economical perspective. That, however, does not cover the depth of a DesignBuild project, which, because it is real, has to necessarily be viewed and worked on as a whole. Due to this practical relevance, the context of a DesignBuild project has to be viewed in greater detail than a classic fictional design in which the surroundings are analysed based on other aspects and imagined by the building owners. Here, students leave behind the sheltered framework of their university and get to know the immediate consequences of one's own actions and the associated responsibility as architects.

What follows is a brief description of an ideal project schedule with its different modules based on the experience of the authors. In order to meet the aspiration of a DesignBuild project, a preoccupation in the form of a theoretic examination, which is also referred to as work phase 0, serves as an introduction and the first module for one's own contribution. As previously described, this theoretical foundation helps to formulate goals and intentions from the start in order to be aware of the scope of this undertaking. Therefore, this phase should include a comparison, orientation and classification of previous projects. It should ask and discuss questions such as: "What do we want to achieve?" "What is our goal?" "What is our task?" The modules three and four (design and planning) as well as their relevance are self-explanatory in an architectural planning process. They are similar to those of a "normal" fictitious design, but, in the planning stage, they go further and are more detailed. This is followed by the fourth module (implementation), which is intentionally not referred to as "construction" or "constructional implementation" in order to ensure a process with a predetermined outcome. The aspiration of a constructed DesignBuild project exists by its very definition, but it can also be given added flexibility through an open objective. Being open to determining during a process that building in the context of the project is not the best solution is incredibly difficult and sobering. However, for the good of society and the location, it is a possibility that must be respected. And this is precisely the challenge for DesignBuild projects because it is the construction works that are of great importance (Pawlicki 2020, 172).

The aspect of learning through mistakes leads to the derivation of the fifth module – the reflection.
Reflection not only helps avoid errors in the future but also, through consciously dealing with the experiences that have been made, also conveys additional skills. Ideally, the reflection module not only concludes a DesignBuild project but is present throughout. Reflecting questions may be: "What exactly happened?" "How did I behave?" "What consequences did that have?" Since the theoretical foundation in the beginning and the reflection throughout the process (but especially following its completion) works as a framework, the support of one (ideally consistently available) person that accompanies the reflective process is logical. Professors also have an interest in this execution: "We would like to see this accompaniment of critical evaluation of previous projects and reflection at the end of our own project. To develop this process methodically is also very important [...]." (Perschmann, Budde 2021, 218 [Interview with Prof. Eike Roswag-Klinge]).
In addition to the constant group reflection within the project, in order to take full advantage of the aforementioned aspect of learning from the mis-

Idealised project cycle: Zoom-In



takes of others, it is also critically important to fully document the project and mistakes that were made, as well as the solutions that were found as well as helpful conclusions.

The quality and sustainability of the buildings is not measurable and comparable immediately following its completion since certain aspects can only be evaluated over time. This includes the durability of the built structure as well as the impact of the projects, i.e. what effect did it have on the user, society and its surroundings and how has it been accepted by others. That is why the project also has to be evaluated a few years after its completion. For the purpose of learning from mistakes, this evaluation should be publicly accessible.

It can be noted that, by linking design, execution and implementation, an understanding of the mutual effect is created that sustainably shapes one's own understanding of architecture. In order to avoid the creation of an incorrect understanding of interdependencies and consequences due to the lack of time and the abbreviated dealing with certain modules, which would have a negative effect on the education, all phases must be provided a suitable time frame in order to be properly executed. This means that a DesignBuild project is only considered to have been completed when a theoretical foundation as the basis, as well as a critical reflection concerning the specific project, have taken place and been published.

A framing of the theory as described above leads to the establishment of a culture of learning from mistakes. This allows processes as well as the learning and teaching behaviour to be optimally analysed, documented and internalised.

Social transformation

"Do we want to take this environmental crisis seriously or question it? Do you get the impression that we as scientists are enjoying this? [...] I keep asking myself what the motive would be that they suggest we have. It is simple to start out by taking science seriously and then to ask later 'What do I do with this result?' [...] Looking back on history, wars were typically started over shortages of resources. And security questions arose through a supply uncertainty. [...] They always act as though I want to spoil people's fun. It's simply about looking at what science and our observations [...] are telling us, what has changed and that this isn't good" (Talk aus Berlin, 2020).

The changing aspirations of architecture

STUD What we are generally referring to as modern progress has resulted in the spread of people and the exploitation of our environment. Over the past 27 years, the settlement and traffic area has increased by 27 %, which comes out to an average of approx. 2 km^2 per day (Umwelt Bundesamt 2020, "Siedlungs- und Verkehrsfläche"). The primary concern of people seems to be to do whatever they want without thinking about leaving behind their environment in the same way they found it. As a result, we are far removed from the idea that we are part of nature and form a symbiosis with it. The part of the planet that humans have claimed as their own is much too large and no longer permits a balance of habitats, which is one of the reasons why we are seeing a period of extinction (Talk Berlin, 2020).

A main driver of the environmental crisis is the overconsumption in the Anthropocene. The term overconsumption deals with the question of how much people need to be well supplied and how much they actually consume. A basic supply has long been achieved in our part of the planet. In addition, this overconsumption not only leads to the destruction of our planet, it also ensures that there are not enough resources for providing all of the people on our planet with a basic supply (Talk Berlin, 2020).

How does that concern us as architects and designers? It is, after all, a global problem! Accounting for 38 % of global greenhouse gas emissions (Zentrum Ressourceneffizienz) and 52 % of the waste in Germany, (Umweltbundesamt 2008) the building sector is the most raw material-consuming industry and therefore plays a major role in the current development.

It is apparent that rethinking our society is unavoidable, if only because many construction materials are limited or are already running out. Still, it must be noted that it seems to be difficult for building owners, architects and users to change the way in which they are doing things (Grafe, Rieniets (ed.) 2020, 7). In our culture of building, many structures are still being demolished, which not only requires additional resources for a new building but also means the destruction of resources in which past generations had invested.

The book 'Rebuilding culture, for an architecture of change' examines one type of rethinking. It describes that, until the 19th century, it was normal to rebuild buildings or reuse the resources used for construction. The manpower and materials used to construct the building were too valuable for a demolition and subsequent destruction of resources (Grafe, Rieniets (ed.) 2020, 11).

Industrialisation led to a paradigm shift in the building

sector. Cities grew and the demand for living space, jobs and infrastructure kept increasing. Thanks to new construction methods, it was possible to build quickly and on a large scale for the first time, which was another key factor. This paradigm shift ended the practice of rebuilding and the continuous repair of cities (Grafe, Rieniets (ed.) 2020, 12). Statistics illustrate our current building culture. There were 130,000 new buildings as opposed to 65,000 involving existing buildings. Each year, we consume 7 tonnes of non-renewable raw materials and 3 tonnes of debris per German citizen (Grafe, Rieniets (ed.) 2020, 5ff.). A development that cannot be reconciled with the public outcry demanding more moderation as well as the climate targets called for by the scientists. This process will intensify further unless architecture and the attitude of the building sector changes drastically. Decisive joint action is needed to counteract this development. The required transformation processes can only take place in, be made by and come from our society. For this purpose, we have to be open to and ready for innovation. Ready for rethinking our way of life. Ready for experiments that might require us to put what we know on the back burner. Being open to what is ahead of us in order to discover new paths for our future.

Because, while 55 % of the world's population lived in cities in 2018, the United Nations predicts that it will be 68 % in 2050 (Sachs 2018, 31). In order to counteract these problems, new methods are needed and old methods have to be reconsidered.

Design is one of these methods – an accomplishment of industrialisation and a sign of a developed society. Here, too, only a small part of the world's population benefits while a much larger share has to deal with the consequences (Krohn 2018, 130) (Perschmann, Budde 2021, 218 [Interview with Prof. Dr. Martin Düchs]) We equate reconfiguration with innovation and always want more new things without thinking about the consequences of this demand. However, "new" neither means architectural value nor a higher quality (Grafe, Rieniets (ed.) 2020, 7).

Architects have a special responsibility and have to question their own self-image and then rise above it. For far too long, the building sector has neglected to deal with society, the significance of its actions, the necessary change of the building culture as well as the architecture of the future.

The modern image of architects as artists that create iconic buildings and make history follows a heroic writing of history of select individuals and it has to change. This image is based on a miscalculation of the past. Many small innovations from different stakeholders – and not individuals – were responsible for the progress of modern architecture. The iconic buildings of the past are just snapshots of a continuous development (Oswalt 2017, 59ff.).

The self-image of the heroic architect has to be overcome, because the complexity of architecture practice in terms of technical, cultural, social and moral requirements and the associated processes require a process of rethinking. New answers and new paths have to be demonstrated because that is the only way in which architecture can meet its obligations to responsibly participate in the design of humane, habitable environments within and outside of our cities.

We should seek to find a way in which we can design our future together (Talk aus Berlin, 2020). "One of the goals of architecture [...] has to be to no longer force humans into a world in which all decisions are made for them" (Fischer 2021).

"Polarised terms such as 'sacrifice' and 'regulation' should be scrutinised so that it can be debated whether they make sense in order to promote innovation and overcome problems" (Talk aus Berlin, 2020).

The key is to view sustainable architecture not as an architecture of limitations, requirements, criteria and necessity but rather as an opportunity. There is a need for a design attitude and a mindset that can meet modern requirements. It is an opportunity to make architecture simpler and to liberate it from unnecessary technology, which makes up for what the construction of the building lacks.

Unfortunately, the debate is too often about building culture vs. sustainability.
The reason for this attitude, which is way off the mark, is probably the equation of requirements, such as those of the German Energy Saving Ordinance, with design principles that consist of 20th century social and architectural topics. Contextuality, appropriateness, integration, responsibility toward users, etc. are not evils. Instead, they should be bedrocks of architecture. In the history of architecture, there have always been currents dedicated to dealing with humans, nature and the environment. From Art and Craft to the Garden city movement. Even Vitruvius demanded that the alignment of streets should be planned while taking the wind into account. It's about viewing architecture as a constructed part of the living environment that is to be respected instead of a self-referencing monologue. An architecture with a powerful, atmospheric language beyond subsequent adjustments is needed. An architecture that values materiality, orientation, light, spatial and air quality (El Khouli 2010). This should not be viewed as a burden but rather as an opportunity to return a social, political and cultural focus to architecture.
This text makes clear how many aspects of architecture and society are in a state of upheaval (or at least should be). We cannot keep doing what the majority of the industry does. These are not just architectural topics, but they can responsibly help contribute to them. Universities play a major role in this regard. This is a place for new impulses and where the next generation of architects is educated. And this is not only where the required knowledge for performing the job should be conveyed but also the responsibility that goes along with the profession. DesignBuild can help determine and convey the responsibilities and qualities of the architecture of the future. To do so, however, these have to be observed, questioned, discussed and renegotiated – and not just at universities but also as part of a dialogue with society.

Collaboration

STUD The complexity of architecture practice and the role of architects in the design, planning and construction process requires an in-depth understanding for the tasks of the different fields, the ability to cooperate and organise and how to competently interact with society. With regard to technical, cultural, social and moral requirements, it is necessary to carefully think though processes from many perspectives right from the start.

Disciplines differ in terms of their perspective, their professional focus and the methods that are being applied. A process in which at least two disciplines work together is referred to as "interdisciplinary". This means operating in a scientific and cooperative manner on the basis of a jointly developed question that is supposed to lead to a solution through the cooperation between relevant stakeholders of different disciplines. Enriching one's own perspective and expanding it beyond one's own profession – through the transfer of knowledge and methods between disciplines – allows a greater understanding of complex situations (Küng, 2012).
Interdisciplinarity should be a cornerstone of the university experience. However, this cornerstone has only been placed in part. For example, universities offer good opportunities for exchange and cooperation for different disciplines. Because where else, if not there, is it as easy as simply going up one floor or walking to the next building to find other curious and experienced researchers for exchanges and initiating joint projects?
An especially successful type of interdisciplinarity is often referred to as transdisciplinarity. This means that the borders of the cooperating disciplines blur and that, at the end of the joint process, it is no longer clear who contributed what in which area. For the architecture industry, this might mean a city quarter that functions well environmentally as well as socially. For a few years, there has been an expanded definition, since the intersection between science

(especially the planning disciplines) and political, societal and social topics is becoming ever more present and this discourse affects the public. In this sense, transdisciplinarity is not just a limit-dissolving next phase of interdisciplinarity but also actively involves the public. Civil stakeholders from politics, industry and society are viewed as equal partners with a valuable opinion that have to be included in architectural projects (Küng, 2012).

In classic architecture studies, society is nearly fully left out since nearly every design assumes fictitious building owners and users as well as their potential positions. So how can we, upon leaving the university, assume that we know what properly building means for a society that we hardly know? "We have a very important role as architects, because we have to develop the ability for the overview of the whole project. That is why this step into transdisciplinarity is very helpful in the phase of education or learning" (Perschmann, Budde 2021, 221 [interview with Prof. Eike Roswag-Klinge]). This theory is also supported by the students, whose view of the tasks of architects have changed after participating in DesignBuild: "Working together with the users and integrating them into the process is much more difficult than previously thought. It takes time to establish trust and build networks, which play the most important role in DesignBuild projects. While this aspect is often mentioned in DesignBuild projects, it is portrayed as being too easy and something that just happens. Students are often very busy with competitive designs and therefore cannot set aside enough time for strengthening these networks" (Perschmann, Budde 2021, 70) In some cases, certain disciplines at architecture departments attempt to get students to "leave the ivory tower" and attempt to interact with society through DesignBuild and other teaching approaches.

Architecture is an interplay of different disciplines that can only be implemented together and, therefore, has to be learned, tried out and constantly optimised in that way. As part of architectural education, we should meet this challenge much more openly and in a manner that is more interesting, which is something that can be achieved very well with the open-minded educational approach of the DesignBuild method.

DesignBuild projects are generally designed to be interdisciplinary since the step from paper to reality would be impossible without the help of other disciplines. The best implementation for the greatest learning effect would certainly be an interdisciplinary cooperation involving students from different fields. "But this is rarely properly done because it is extremely burdensome to even learn the terminology of the other disciplines" (Perschmann, Budde 2021, 237 [Interview with Prof. Dr. Martin Düchs]).

That is why, in many cases, the cooperation with the instructors of other disciplines or the fully trained employees of an office is sought, for example by connecting the architecture students to a statics office. Due to the necessity of making use of different fields of knowledge, the immediate connection to reality, stepping out into society and the participation of the affected stakeholders that is usually aspired to in a DesignBuild project "[this method] offers the opportunity to achieve both [interdisciplinarity and transdisciplinarity], which is actually not happening as frequently as in a scientific setting" (Perschmann, Budde 2021, 237 [Interview with Prof. Dr. Martin Düchs]).

Students also expect "the cooperation between different disciplines [...], in order to better understand dependencies and find a common language" (Perschmann, Budde 2021, survey "DesignBuild in architectural education": What do you expect from a DesignBuild project?) from DesignBuild projects. What should not be overlooked is that, the more disciplines are involved in a project, the more complex the entire process will become and the tougher and more protracted the entire endeavour will become (Perschmann, Budde 2021, 240 [interview with Prof. Ursula Hartig]). In addition to the direct benefits of these types of interdisciplinary and

transdisciplinary cooperations and procedures, this method also offers an added value for the future. On the one hand, it contributes to reducing any existing prejudice, a bad reputation or even hostilities – or it does not even allow them to be formed as a result of a mutual understanding caused by better getting to know each other. On the other, it generates respect for the other disciplines and the building trades as well as for the population at large, underscores their reasons for being and participating, and can even lead to the establishment of useful connections that can be helpful for projects later on.

It is therefore worth noting that the complexity of architecture practice in terms of its technical, cultural, social and moral requirements commands that processes are thought through from all directions from the start. Therefore, the cooperation between different professions or fields of study should be a prerequisite because the combined knowledge can be used to find answers and discover new ways of doing things. Architecture can only fulfil its function when working with other disciplines that are involved in designing humane and habitable environments inside and outside of our cities. Since the places where the sciences, especially those in the planning disciplines, are intersecting with political, societal or social topics are becoming more prominent and the discussion about interventions in urban areas also impacts the public, a transdiscplinary approach also attempts to actively involve the public.
DesignBuild projects offer an opportunity to make contacts outside of the university setting, to take a step into reality and to learn how to interact with civil society even while at university.

Supporting partnerships

INST As shown in the previous chapters, DesignBuild projects distinguish themselves from conventional projects in architectural education and practice in key aspects. In many cases, a construction project could only have been completed in the DesignBuild format. On the other hand, the studios are taking advantage of the cooperation with non-academic collaboration partners in order to achieve the targeted goals on an output and outcome level. Therefore, a partnership is created – either for the duration of a single project or the longer term – not only among students of different fields but also between academia and non-academia, universities and society[10]. Whenever somebody writes about, talks about or discusses DesignBuild, what they always mention are these risks and opportunities, the advantages and disadvantages of these two poles in the form of mutually supporting partnerships and learning from another.
While a traditional research approach assumes that the research will contribute knowledge to society, the approach of the Participatory Action Research according to Winkler (2013, 218) reverts back to the practical, experimental, local and tactical knowledge of the members of the community and refers to the paradigm of "different ways of knowing" that was shaped by Sandercock (2003). This stands in contrast to a knowledge based purely on empiric scientific data. Dewey, whose theories regarding the DesignBuild method can be considered to be groundbreaking, criticises this spectator theory of knowledge in the quest for practice-relevant knowledge and posited the hypothesis that an increase in knowledge should always have the goal of eliciting change. Against this backdrop, Sandercock describes a creation of knowledge for planners through dialogue and experience, learning through local knowledge,

10 In the USA, the terms of University-Community Partnership or service to the community are used for this (Pearson 2003, 6).

through comprehending symbolic and non-verbal cues or simply through contemplation.
The inclusion of these "different ways of knowing" in the form of collaboration partners that help design the projects is an aspect through which DesignBuild projects distinguish themselves from conventional studios within architectural education. It can also be noted that they do not merely imitate a conventional architecture practice by letting the core team assume the role of the architect. Harriett Harris describes this as follows: "Although today's live projects have taken architectural education back out of the academy, they haven't run in the direction of professional practice either" (Harriss 2018, 239). Instead, by being embedded in education and research, there is not merely an orientation toward economic interests, and non-conventional processes can be implemented. This allows DesignBuild studios to be innovative in the sense of creating something new.

Participation

STUD Participation is a term from the field of democracy theory and refers to the involvement of individuals or groups in decisions and decision-making processes. Historically, the demand for participation is based on the following argument: Decisions affect our affairs and therefore we have the right to have a say in them. Therefore, the right to participate is invoked on the basis of human rights, the right to self-determination and human dignity" (Urban 2005, 1). This definition creates a good basis in order to be able to establish an understanding of the term "participation". But, when one thinks about it a bit longer, the following, more-profound questions arise: What does that mean in terms of the different benchmarks of our society? What exactly is participation? Does participation have any prerequisites and, if yes, which ones? If everybody has a right of participation, are we then not also obligated to make use of it?

Based on Arnstein's theory of the "Ladder of citizen participation", a three-tiered diagram of participation has been established that consists of information, deliberation and collaboration. The participation expert Jascha Röhr explains: In the case of information stage processes, participation is limited to the dissemination and disclosure of information. However, the participants, such as regular citizens, do not influence the decisions. In the case of deliberation, the information is expanded by asking for the opinions of citizens. In the case of collaboration, participants are not just given information and consulted, they are actively asked to get involved and their potential is integrated. This allows for a maximal identification with the result (Berlin Institut für Partizipation). In the participation manual of the city of Berlin, this stage is referred to as "deciding": "Citizens [...] vote and thereby make a binding and joint decision that is legitimised by many" (ibid.).

"Participation requires structures that permit participation, allow it, foster it and, ideally, incorporate it into law" (Urban 2005, 3). "The structural conditions as well as the personal design of a situation by all stakeholders is the key as to whether participation is successful and to what degree it is developed. That means participation is only possible as an interplay between structural conditions and the participants" (Urban 2005, 3).
Especially after or because of projects like Stuttgart 21 – the redesign of the railway station in Stuttgart – or the construction of the EZB in Frankfurt am Main – a skyscraper that serves as the new headquarters of the European Central Bank – the desire of citizens to help create their city keeps increasing (Sigmund, Weyand 2015). Architect Susanne Hofmann explains it as follows: "A society of increasingly emancipated people increasingly requires their participation in the design of their built environment" (Sigmund, Weyand 2015). With this desire, and especially the increasing demands, the understanding of the profession of architects is being questioned, and they are increasingly facing accusations of being arrogant when they ignore this development (Sigmund, Weyand 2015).

Good participation processes can enrich architecture and the way it is dealt with, but a successful implementation is often very challenging. By involving all participants early on – not just the planners but also the users – the acceptance of the building can be increased enormously and an economical added value can be created because" [...] conflict potentials and the associated time and costs can be minimised" (Hofmann 2014, 9). But how does participation work in the context of architecture? How relevant is it? Does that not take too much time and money in the planning process? A sticking point is that the majority of architects have little to no experience in this area, that this type of process is neither simple nor is it taught, and it is also not reimbursed in accordance with HOAI (the fee schedule for architects and engineers). It is increasingly being discussed to include this participation into the basic evaluation of a planning process. One requirement for doing so would be the transparency of planners, a goal-oriented communication and a focus on the habits of the future users (Hofmann 2014, 8). As a result of the relative newness of this participative method and the approach" [...] that the quality of architecture is measured by its sustainable usability and the degree to which the users identify with the building [...]" (Hofmann 2014, 8), there is necessarily also a degree of uncertainty or a risk that different opinions may clash and an uncertainty on the part of the planners. Because, as the model from Arnstein shows, participation does not equal participation and, if it merely fulfils an alibi function, it can even be counterproductive (Berlin Institut für Partizipation).

"Participation is also a challenge to the self-image of architects, because a participatory design and building process may lead to new production types and new building aesthetics" (Hofmann 2014, 9). However, or maybe even because of this, we as architects should agree to it and, using our knowledge and experience, should attempt to position ourselves as well as possible for these increasingly popular participatory processes. Because, "whether architects isolate themselves and therefore expose themselves to accusations of arrogance and narcissism or open up their design to a participatory process with the users has become an existential question" (Hofmann 2014, 8).

Against the previously illustrated backdrop of participation in architecture, this method of participatory processes will be placed in the context of DesignBuild below and discussed on the basis of different experiences. This involves the different types of participation in a DesignBuild project, the criticism of the use of this term as a figurehead, the usage as justification of these projects and that maximum participation is not an obligation. Furthermore, the extent of participation within a project is examined more closely, as well as the problem that participation is playing hardly any role within architectural education.

DesignBuild is one of the methods that reacts to the development of an increased user connection and therefore (partially) implements participation. Just as in conventional architecture practice, there are also different possibilities that lead to different levels of participation.

Upon closer examination, there are two different ways in which participation can be initiated. The first is in a pure university context and refers to the rate of participation between students and instructors. How much are the students involved in the design process? Is it completely transparent or, apart from a few ways to make changes, generally predetermined by the department? How much do students get to decide? At the start of the project, a structure will develop among team members that generally reflects the degree of student participation. If the degree of potential participation is high, then the "work of the team is structured along more or less flat [...] hierarchies [...]" (Perschmann, Budde 2021, 62 ff.). This means that the instructors dictate less and students are enabled to participate in the process, and therefore their education, in a way that is self-determined. The second option refers to the participation in the

form of the contact and cooperation of the university with the external participants on site, whether these are the building owners, future users, neighbours or other stakeholders. All the way back when the DesignBuild project is initiated, but no later than the project's conceptional phase, work phase 0 or the design phase, the contact to the external partners should be (or should have been) established in order to integrate them. It is important, in accordance with the aforementioned degrees of participation, that they are not merely provided information but actively involved. Ideally, this happens as part of recurring exchanges during the design and planning phases. However, in many cases, the future users (apart from brief project presentations), are only involved on the construction site – if at all. For representation purposes, the image of students and future users working together is a mainstay of DesignBuild projects. If there is interest and unanimity, then the goal is to work together in order to ensure that the building is more widely accepted, to create an identification with it and to initiate the required care. It seems as though a high degree of participation is often intended, but the actual implementation is often not possible or prioritised.

The aforementioned participation processes and objectives cannot be equally applied to all DesignBuild projects and are also not desired in all cases. Especially in the case of research projects or prototypical building, the focus is generally elsewhere. Although it is usually aspired to, participation is not automatically a part of DesignBuild. As explained above, participatory work also functions in a purely academic context. Therefore, in order to have a degree of participation, future users or neighbours do not necessarily have to be involved.

As a result, the first step is to ask without judgement how great the level of participation of different DesignBuild projects is. It is not necessarily bad if there is no or very little participation as long as all of the participants know what they are in for and that this has been communicated clearly. However, it becomes a problem if the projects portray themselves as highly participatory across all levels – possibly only for image reasons – but are essentially only faking it. One problem is that participation is not taught or tried out in the education of architects. There are few exceptions in which the students in a design studio are actually in touch with the building owners or its users. Obviously, it is possible to indirectly learn approaches on how to handle methods of participation, for example in group projects at university or simply by participating in everyday life. However, that is not the same – and very likely also not as efficient – as targeted learning dealing with how to handle participation as part of their education. Especially in light of the growing demand for integration into architectural processes and urban development decisions made by society, students should definitely be prepared for this.

In conclusion, it should be noted that there are certain contexts in which a DesignBuild project should always use a participatory method. Obviously, that not only applies to DesignBuild but also to architecture in general.

With the proper analysis and reflection, DesignBuild, together with the tool of participation, can be a way to find answers to society's increasing demands on architecture.

Architectural practice

"However, the goal of our DesignBuild projects is not merely reduced to build a building. Instead, it is much more about providing students with the opportunity to experience and understand the immediate consequence of their thinking, communication and their actions in a broader context" (Fattinger 2011, p. 27)

Objectives and quality assurance

STUD We find ourselves in a discourse in that space between process and result, and between architectural and academic responsibility. The question is not whether DesignBuild projects are about the process or the result – one cannot exist without the other – but rather how we can use the DesignBuild method to offer students the greatest possible learning success while meeting our responsibility as architects at the same time.

And this learning success will be reflected in the perception of the students. "It gave me an entirely new perspective of what architecture can be but also about what the work of an architect can be like. That there is more to it than the HOAI work phases" (Perschmann, Budde 2021, 73). As a result of this focussed view of the project process and of teaching, it is about providing constructional, social and building-cultural qualities. This process also offers an opportunity for questioning these qualities and their criteria.

Obviously, the aspiration of these qualities not only relates to DesignBuild projects. These are aspirations that architecture in general should reflect but also architectural practice and architectural education. The issue of why the DesignBuild method has to represent the aspirations of these qualities in the public discourse was also raised in the interview with Prof. Ursula Hartig (Perschmann, Budde 2021, 239 [interview with Prof. Ursula Hartig]). Maybe the reason is that DesignBuild contains a realignment of architectural education (with its long storied tradition) and architecture practice and is therefore constantly scrutinised. Maybe another reason is that the participants of the projects generally have to be open and self-critical, which is why they foster this process. And maybe because one part of this method is to move from the university into society, to leave behind the protective bubble of the university and, as a result, to be out in the open and to face this debate. And possibly also because this method is new, increasingly popular and is discussed in many exhibitions, publications and events.

University designs usually face these questions internally, select projects are discussed, but the architectural practice for the public at large simply does not permit this debate in most cases. However, being positioned in this way also provides an opportunity for DesignBuild, education and architecture." [...] honestly, we should question all of these systems [...], we have to move into the future [...]. Building culture, acting socially, building construction, what does all of that mean? [...] We have to leave behind societal thought patterns, and that's the big challenge" (Perschmann, Budde 2021, 219 [interview with Prof. Eike Roswag-Klinge]). A university should be a place where people can tackle these questions. It is important that qualities exist. However, these should also be scrutinised continuously." [...] "University should not reflect the industry but rather explore and strengthen areas that are still niches" (Perschmann, Budde 2021, survey "DesignBuild in architectural education": What do you expect from a DesignBuild project?).

Next is an attempt to develop possible criteria for construction, social and building-cultural qualities

with a focus on DesignBuild. These criteria are intended to assist with scrutinising the projects as well as a possible analysis with regard to their educational aspect. These are proposals that should and have to be reflected on constantly in order to advance process and discourse alike.

- Construction quality:
  "Construction refers to the construction of buildings. It not only includes the construction process but also the result, the joining of components in a completed building" (FH Aachen "Construction")

In addition to the aforementioned focus, construction particularly emphasises the stability and longevity of the buildings. Usually, the university team leaves following the construction process and hands the projects over to their users. The option of acquisition as well as the option of maintaining the building on their own has to be provided. The issue of sustainability is currently seen to be critical for many projects. Can the materials be reused? How large is the CO2 footprint? Is it a simple construction or are complicated methods needed? (Perschmann, Budde 2021, 236 [interview with Prof. Dr. Martin Düchs]) Can temporary structures be reused or separated and recycled? How can the process or the result be innovative? These and other questions have to considered.

- Social quality:
  "Therefore, the practical relevance of an examination regarding responsibility, morals and ethics of architects is the result of the great significance of architecture for the personal and social lives of people, which is comparable to those in the fields of health care and politics" (Düchs 2011, 9)

The utility for society as a whole and the stakeholder opportunity for all is most important. It is also about whether the implementation of the project will result in the social improvement of a situation and its surroundings. It is exactly this decision that cannot be made in a way that is objectively comprehensible without specified criteria. Prof. Dr. Martin Düchs has reinterpreted the following classic criteria of moral philosophy for the field of architecture: Fairness, which is also a question of having the opportunity to participate, caring about people, damage prevention and autonomy. This list is expanded with the addition of sustainability and beauty (Perschmann, Budde 2021, 236 [Interview with Prof. Dr. Martin Düchs]). These can be applied to architecture practice and are therefore also relevant for DesignBuild projects.

- Building-cultural quality:
  "Building culture is essential for creating an environment that is deemed to be habitable. In addition to social, environmental and economic bases, it also has an emotional and aesthetic dimension. Its creation, acquisition and use is a social process that is based on the wide-ranging communication of qualitative values and goals" (Bundesstiftung Baukultur 2021)

Even far removed from DesignBuild, the question of building culture demands a discussion that architecture has to confront. "We truly have a communication problem of building-cultural quality. That means it matters little if we in the ivory tower agree on what good architecture is but do not have the processes and tools to convey this" (Perschmann, Budde 2021, 243 [interview with Prof. Jan Kampshoff]).

Should building culture only be measured by the constructed results? In a classic sense, this is what a jury of experts does when it judges completed projects. In the context of DesignBuild projects and the question of their implementation, which intentionally is not limited to their construction, this debate is necessary. Are not aspects like acceptance, acquisition and use – and the associated connection, care and beauty – determined in large part by the process? And therefore part of the building culture? "Building culture is always created anew – individual, specific and local. Depending on the objective, location and reason, each stakeholder has to find their own composition" (Sigmund 2018).

And it is precisely this constant debate that offers a major opportunity. Together with the development

of a generally applicable catalogue of criteria for comparing projects, which has to be developed just once but then continuously reassessed and questioned, quality can be created situationally and in many ways.

In conclusion, it has to be pointed out that no specific set of instructions can be provided (or should be provided) in order to define this assessment in a manner that can claim to be complete. In part also because continuous transformation is in the nature of social and building-cultural qualities, and it is also encouraged. Based on her experience, Prof. Ursula Hartig reports that it is exactly this transparency that plays an elementary role in conveying and optimally implementing them (Perschmann, Budde 2021, 240 [interview Prof. Ursula Hartig]). "First it is about transparency. From the start, everybody knows that the workers are not trained and are still at university. When [...], everybody participates in the building process, then they recognise what it means to assist in the construction, to do hands-on construction and what type of qualities are possible or already exist" (Perschmann, Budde 2021, 210 [talk "DesignBuild in architectural education"]).

Constructional implementation

INST The constructional implementation represents an essential and characteristic component of Design-Build projects and distinguishes them from conventional studio projects in architectural education. In addition to the educational relevance, the role of the "do-it-yourself" completion is further underscored by the fact that many of the projects are building projects that would never have come to be in a traditional architect / building owner relationship.

As described by Larson, people not only use construction to demonstrate strength and something sacred but also to create homes for modest daily uses (Larson 1995, 3). The definition of the (construction) task is therefore of central importance to the project and also positions it politically and with regard to its substance. In addition to projects that were designed for use by specific groups of users, there are also projects whose groups of users are not specified or, as pure material or design experiments, are not even designed for future use. This affects how the upstream design process has been shaped, for example in terms of the selection of the building materials and the construction method. If a future use is intended and specified from the beginning, then constructional improvements of a living space, the upgrading of a public space and the (building) cultural and social contextualising of the projects usually play a bigger role. From the perspective of the students, their perception also varies depending on the degree to which their own constructional implementation is part of a design process or whether the design and its implementation were intended to take place one after another.

In many cases, the implementation is carried out with the help of people who have been trained in the building trades, and the participation of the students is very different at this point depending on the respective teaching philosophy. In addition to securing the constructional quality, this also allows students to acquire skills on how to communicate with craftspeople. Especially in the case of international projects, the building trades or the act of building are also viewed as a language that permits intercultural collaborations in this context. Along these lines, the building crafts are often also used as a means of participation. Lucius Burckhardt and Walter Förderer describe this in Building a process (1972, 44) as conditions, coincidences and inspirations that, together with the manual work of planners and users, are created and can be consciously used as a design element and a means for owning the construction project. In addition, the knowledge acquired as a result of action-oriented learning is generally more easily accessible than knowledge that was exclusively acquired via passively received teaching formats (Fattinger 2011, 281).

Constructional / spatial change

INST As a result of the implementation of a construction project, the spatial change or the change of a context through DesignBuild projects is immanent. In most cases, this is a context outside of the university setting. As is evident, change becomes part of the architectural practice component of DesignBuild. The intention of the short-term and medium-term impact of the constructional implementation can be sorted into the following three categories: Upgrading of a constructional or spatial context; promotion of resource-preserving climate-adapted construction and local building techniques; and innovation through material research and constructional experiments. The categories are described in more depth below.

In many project descriptions, the constructional or spatial change is described as an upgrade of the existing context. In part, this can be recognised by the fact that aspects are addressed that are supposed to directly upgrade the existing surroundings as expansions, (partial) renovations or simply the design of free spaces.

Learning & internalizing through practical experience

STUD In spite of the additional organisational effort, an emphasis on being assisted by craftspeople is important. There is a difference between one's own, non-professional (DIY) and professional handicraft. In the case of do-it-yourself projects, the result is at the forefront of one's own work. A broad comprehension does not take place since one's own mistakes are not necessarily questioned or reflected upon. That also means there is no possibility of developing problem-solving skills. In the building trades, the aim to do a good job through practice and scrutinising one's own actions is of central importance (Hesse, 12). This allows craftspeople to internalise skills, discover problems and solve them by consciously comprehending the contexts of one's own actions.

"In the process, it develops pride in one's own work. Because the development of one's own personal skills causes a strong emotional bond to the buildings. First and foremost, that is how the building can be integrated into the existing network in order to be perceived by the users as added value and to be maintained by them" (Hesse, 43).

In that sense, DesignBuild projects offer an opportunity to meet the demands of an increasingly emancipated society to participate in the design of their environment (Bimesdörfer 2014, 13). This counters the accusation that planners are increasingly distancing themselves from the needs of building owners and users. That means students can already be introduced to this aspect of their responsibility during their studies and train their ability to deal with process stakeholders and complex situations.

In addition, DesignBuild projects foster an understanding of, as well as the corresponding respect for, different stakeholders – both on and off construction sites – and how to work with them. Prof. Ursula Hartig describes that, to her, this respect primarily manifests itself in working together and an understanding of, for example, how a wall is built. For future architects, this respect is incredibly important. It will then also be shown to them and serves as the basis for better communication and cooperation" (Perschmann, Budde 2021, 231 ff. [interview with Prof. Ursula Hartig]). "To me, it is the most exciting and most beautiful aspect of them all. The practical. That also means valuing and dealing with the building trades. The flexibility to adapt it to the conditions. You get an opportunity to get serious insights into the work on a construction site" (Perschmann, Budde 2021, 209 ff.).

In addition, the instructions from craftspeople cover part of the demand for constructional quality. "I believe that, with the right experts on the team, people will no longer focus as much on the issues of constructive responsibility and quality since they will be ensured in that way" (Perschmann, Budde 2021, 209 ff.).

In addition to obtaining cross-discipline knowledge and social competencies, there is also the possibility

of providing the students and others who participate in the process with in-depth insights into the individual components and the course of a construction process with all of its facets and stakeholders. As opposed to a theoretical exercise, such as a costing or a structural analysis for a university design, the practical nature of DesignBuild projects allows students to better internalise results, experiences and curricular contents.

In psychology and education, this type of gaining insights is referred to as experience-based learning. This is a "didactic model that is based on the assumption that immediately and practically dealing with a subject allows the learning person to learn more effectively and in a meaningful way. In this model, learning presumes a specific experience in real-life conditions outside of an artificial learning environment" (Stangl 2021).

The potentials of DesignBuild projects that were listed here call for an instruction. As in (nearly) all other aspects of life, encouragement, explanation, instruction and authorisation by experienced people are also essential in this case. The realisation that architects do not have to be able to do everything and should expand our knowledge through the experience of others is an important learning process.

Having a trained craftsperson support each task is simply not feasible in many projects (Perschmann, Budde 2021, 231 ff. [interview with Prof. Ursula Hartig]). Therefore, the authors speak of prior experience in the building trades. This experience can be provided by trained craftspeople, students with a prior apprenticeship or previous experience, as well as stakeholders from the team's periphery or the construction site (ibid.)

Learning by doing is helpful and important, however, for the good of the construction process (occupational safety, site safety, time management, etc.) it should not be a focal point. The goal is to strive for a "guided trying out" of the (newly gained) knowledge, which not only helps achieve the objectives of the construction process but is also beneficial for one's own learning effect as well as that of the group.

Architectural education

"As architects who, in light of the fast-paced society in which we live, worry about the future qualitative development of our building culture, are convinced that architecture comprises all factors that affect the planning, design, development, organisation, structure and preservation of the building culture. We feel responsible for an improved university education and job training of future architects to ensure that they can meet the expectation of the global society of the 21st century. [...] That is why an ever-increasing diversity of tasks is needed – both as part of our professional work as well as the university education and job training of architects." (UIA 2011, p. 3)

What education has to accomplish – View of the Association of German Architects

STUD The regular "university days" of the Association of German Architects (BDA) deal with the question what an adequate university education should look like. Specifically, it's about questions like: "Should the education of future architects be specific or broad?", "How quickly can it specialise?", "How have the educational contents changed over time?" and "What does the Bachelor-Master system mean for architectural education?" According to Dr. Thomas Welter, the managing director of the Association of German Architects, this is where opinions vary (including within the association). Some advocate keeping education highly academic with a focus on just teaching design. Because everything else can be learned on the job later on. The opposing view is a desire for more practical experience and the approach of trying out interdisciplinarity sooner and therefore becoming more specific through the corresponding projects. Therefore, the approach of introducing students to projects with a certain relevance early on is supported from different sides.

Welter believes that DesignBuild projects are generally part of a development context, regardless of whether they take place in Europe or elsewhere. This type of project deals with structures and ideas that cannot be found on the architecture market in the same sense and are therefore viewed as unproblematic for the profession of actual architects. However, Welter also emphasises that it is important to ensure that students are not used as cheap labour. This approach would take work away from traditional architecture offices. Sadly, unfortunate examples of this problem keep occurring in the context of competitions advertised to students. Any methodology meant for students has to contain a real educational purpose.

Welter notes that one critical aspect of DesignBuild is that of development aid. If such a project is designed to provide developmental aid, then it has to adapt to local economic structures.

Another critical issue is the need to deal with the time constraints of a university education. The introduction of the Bachelor-Master system has made this even more pressing. Generally, the association's managing director believes that the resulting reduction of the time spent learning means that the contents that have to be conveyed make up an increasing share. He believes that, as a result, it is important to avoid adding more and more content to the university education.

In addition, he explains that the education of architects is based on three pillars – as well as lifelong learning. Following the first pillar (the university

education), the young architects join architecture office where they go through a period in which they earn recognition. During this time, they have to complete certain tasks in all work phases in order to prove that they can be registered as architects. However, this is not where the learning process ends because the third pillar covers the lifelong obligation to keep training. This means that they have to attend classes on a regular basis to stay up to date on their training and to earn a certain number of points. Therefore, topics such as architecture standards, legal bases and business processes do not necessarily have to be covered at university because they can be learned as part of their daily work routine later on. However, it is important to briefly discuss these issues early on during the university education in order to convey to budding architects that architecture is not just about pure design but also everything that goes along with it.

Welter supports the DesignBuild approach but specifies that it is important to keep an eye on the entire educational concept. DesignBuild projects take up a lot of time – both that of students and instructors. This cannot happen at the expense of educational contents. If not subject-wide, each university has to think about which parts can be shortened or combined to make up for this.

There is a constant debate within our own profession and within the association because everybody knows that certain aspects have to be reconsidered in the future. One example is how concrete is used. Due to a shortage of resources and climate change, it has to be utilised more sparingly. According to Welter, the DesignBuild approach is good and does not cause problems regarding competition between DesignBuild projects and traditional architecture offices. However, it has to be ensured that other educational contents of an architectural education are not neglected because of it. In addition, he also believes that the profession can learn from DesignBuild projects and that architects can adapt some insights for their own projects, which can be beneficial. DesignBuild is not an all-encompassing solution, but it offers a good opportunity to examine and try out how to handle the issues of reduction as well as the use of local resources and site-specific knowledge. Welter underscores that there isn't one specific way to educate (or one way to understand education), because education is a process that has to be refined continuously and that has to react to current conditions (Perschmann, Budde 2021, 164ff. [interview with Dr. Thomas Welter]).

Curriculum

STUD It is about the roles architects have to play in order to meet the current conditions, the demands of society and to help protect the environment. "The tasks of architects have not changed at all, because they are about allowing people to have good lives" (Perschmann, Budde 2021, 231 ff. [interview with Prof. Dr. Martin Düchs]). It is fair to say that each generation has changing demands on architecture. In the 1920s, for example, this was social justice. In the 1970s, an era of post-modernism, there were demands for foregoing constant innovation" (Krause 2010). An elementary part of the conscious of our generation is climate change, which goes hand-in-hand with sustainability for architecture. Architects have to move out of the university setting and into society. Architecture and design must not only manifest themselves as something for glossy magazines for the top 1 percent while the building culture for the masses is strictly subjugated to economic criteria (Perschmann, Budde 2021, 231 ff. [interview with Prof. Dr. Martin Düchs]). DesignBuild can build bridges in this regard. Students are learning important professional, social and communication methods and skills while also getting to know themselves (Pawlicki 2020, 130ff.). These are not conveyed in the same way in the current, traditional university education. "I think that DesignBuild projects are more important. I have become aware of the gap between 'regular' university design projects and the reality outside of the university" (Perschmann, Budde 2021, 72 ff). It is the responsibility of universities to offer future architects these skills of tomorrow across many levels.

Even though architecture practice changes along with society as a whole, universities have the opportunity to grapple with current questions, alternative approaches and methods that are mostly free from financial and time constraints. "I think that DesignBuild is not guided by HOAI in a classic sense and that we are afforded the opportunity to start with work phase 0. Questions like 'for whom and with whom am I building'? Or 'what are the needs'[...]? can be very important in this regard" (Perschmann, Budde 2021, 209 ff). It should be noted that DesignBuild projects in current university settings require a significant extra effort on the part of the departments that conduct them and can only be implemented thanks to the dedication of research assistants, professors, students and other participants.

Still, DesignBuild projects have to aspire to being architecturally, socially, culturally, scientifically, technically or artistically relevant (EDBKN 2014). This means that they cannot be carried out randomly. Therefore, the question remains how projects can be evenly distributed throughout the years to ensure that there aren't more interested students than open spots in DesignBuild projects. To a big extent, DesignBuild projects depend on the skills, motivation and commitment of individual participants.

This commitment cannot be measured with grades and it is only made possible through the voluntary motivation of the students. That is also one reason why a mandatory participation in DesignBuild at university is viewed as nonsensical. In spite of the great educational potential, DesignBuild is not the only method or movement that attempts to answer the questions of our times and partially also uses traditional aspects of architectural education. Due to the required competencies, it makes sense that the spots are not allocated on a completely egalitarian basis but rather that they are made available to students based on their skills. But there needs to be a debate on what fairness means in this context. However, with regard to equal opportunities, there is as least one communication problem between instructors and students. In the "DesignBuild in architectural education" survey, (Perschmann, Budde 2021, 62), 13.26 % of those polled said they felt that the spots were allocated based on connections and 41.94 % of those polled believed that DesignBuild projects would only be communicated in certain circles. In addition, it is clear that, ideally, there would be a sufficient number of spots for interested students.

The necessity of building

STUD When talking about the DesignBuild method or DesignBuild projects, the term "design" stands for the activity of designing and planning while "build" stands for the aspect of construction or the spatial implementation, and it is a more or less standard practice in teaching architecture. However, do DesignBuild projects always have to result in construction? To what degree is the act of building a requirement for DesignBuild projects? Is not, as the name indicates, this implementation the special feature that sets them apart from other methods of teaching architecture?

As opposed to a classic design studio, the project does not end with the design or the drafted planning. Instead, just as it would in a professional setting, it continues to the implementation phase. Because only the actual construction allows the illustration of complex relationships and an understanding of architecture as a whole. Linking these two phases is the characteristic feature of DesignBuild projects, and that is what sets them apart from other parts of teaching.

The do-it-yourself implementation allows students to assume responsibility and it shows the complex interconnections of architectural processes as well as the required "big picture" perspective. Acquiring manual skills is a (secondary) positive aspect and it provides many participants with a better understanding of building as a result of the direct implementation of the theoretic knowledge they have

gained. However, these skills are not generally the focal point of the competencies that a DesignBuild project teaches.

When looking at the skills conveyed by a DesignBuild project, we can see that the actual insights that are being acquired only occur during the real step of the construction. Obviously, there are a few, such as working in teams and the direct combination of design and execution planning to the planning of the building services, which could also be conveyed without the actual implementation. However, nearly all other skills are only learned in a real-life context. Simulations are not enough in that regard. The "soft skills" acquired through a DesignBuild project cannot be offset with ECTS credits. That includes learning to be in direct contact with the building owners, users, neighbours and craftspeople, as well as learning to deal with the spontaneous challenges that occur on construction sites and require quick and creative solutions. Admittedly, the aforementioned, organisationally difficult-to-implement combinations of traditional courses would allow students to also learn and understand some contexts, but they would remain largely clueless about the real-life practice of architecture. The complex relationships found in architecture practice are largely only created with the step of planning the construction site.

Schreibmayer summarises the act of a constructional implementation very well. He says "it is not about learning to build but rather about truly understanding building. Those who plan for reality – regardless of who does the building later on – have to recognise reality in all of its forms, influences and constraints, accept it and integrate it into their plans" (Schreibmayer 2009, 57). Therefore, it appears as though a DesignBuild project would be impossible without the "build". But what is the scale of construction we are talking about? For example, would a bench in a park be considered a sufficient construction result? Or does the installation of the constructed element, e.g. a pavilion or a roof, have to be permanent in order to be considered a building and therefore suitable as DesignBuild project? With regard to these aspects, we should stop thinking in black and white and start using the term more flexibly. We should move away from the classic notions of a design project and what the end result has to be. This field is extremely diverse, primarily because of the many departments that organise DesignBuild projects. It is precisely this potential of thinking more broadly through different approaches that should be developed further and not reduced to a rigid format (Perschmann, Budde 2021, 246f. [interview with Prof. Jan Kampshoff]).
This type of project could be envisioned very well on different scales and with different object lifetimes, and that is exactly what sets them apart. The connection to reality and making contacts away from the university are the aspects that offer this tremendous potential of developing skills.

In addition to the empowerment of the participants, such projects – especially because of a constructed result – lead to a structural and spatial transformation and therefore to an empowerment of society as a whole (Pawlicki 2020, 149ff.). These projects, consisting of design and build, are more than the sum of their parts and not "just" a constructed result. Instead, they also change their stakeholders and transform them.

Decision-making competence

INST According to a handout from the conference of education ministers, the decision-making competence is generally understood to be the "willingness and authority of individuals to behave in a factually correct manner as well as be individually and socially responsible in professional, societal and private situations". The decision-making competence is derived from professional competence, self-competence and social skills, which consist of methodological expertise, communicative competence and learning skills (Kultusministerkonferenz 2018, 14).

Within the framework of architectural education, decision-making competence, as a practice-relevant component for students, was already scientifically theoretically examined as the only one of the four broader outcome categories that the author identified. This was done specifically for DesignBuild as Potential for students (Fattinger 2011, 273). In addition to conveying architectural expertise (professional competence), the decision-making competence also includes the acquisition of extra and multidisciplinary qualifications (self-competence and social skills). The latter are also referred to as key qualifications. According to Koch (2008, 208), they should be assigned great importance for future educational efforts since they are leading to the actual decision-making competence of architects. Architecture, on the other hand, can also be identified as the field that the majority of those students will pursue upon graduating who have participated in DesignBuild projects (Kestel, Pawlicki 2017). As this shows, the conveying of decision-making skills by using the DesignBuild method is part of the intended objective of architectural education.

In order to categorise and define different decision-making skills, this paper refers to the competence training or the competence atlas developed by Heyse and Erpenbeck (2011). According to their definition, competences are "self-organisation skills. They are especially important in unresolved problem and decision-making situations in complex situations" (2011, XIII). In addition, they state: "Competencies are based on knowledge in a strict sense, shaped through rules, values and norms, personalised through internalisation processes, made available as skills, consolidated through experiences and realised through willpower" (2011, XI).

Empowerment

INST In the relevant literature on planning processes, empowerment is described as a self-determined process that takes place within and in between individuals in order to exercise greater control over desired actions as well as a willingness to be assertive. According to Winkler (2013), in addition to self-awareness and self-confidence, this requires the development of a personal and collective strength that can be achieved through a process of working together toward a common goal. For DesignBuild in terms of the participatory action research approach, this means that individual projects are triggered by the current situation that produces systemic injustice. As a result, alternative action approaches and solutions were developed that allow for an incremental structural transformation, and therefore also the empowerment of those who had previously not been empowered by the system. This shows that empowerment is part of the social attitude of DesignBuild.

The concept of empowerment in practical education was significantly influenced by Freire's Pedagogy of the Oppressed (1970), in which he examines the connection between power and education. To him, empowerment includes a dialogue in which instructors and students read "the word and the world“ together. Other scientists refined this concept and described it as a multidimensional process that challenges our understanding of how things are or could be. It therefore allows students to make responsible decisions regarding what and how they want to learn, and their instructors and academia as a whole become less important to their educational development. As a result, empowerment provides students with the ability to assess their own skills and themselves. In this sense, it also empowers them to achieve a transformation (Cheng 2017, 11).

So what does that mean specifically for students who participate in DesignBuild projects? It can mean that the construction of a building, including the intrinsic

challenges of a construction process, can demonstrate to them what they are able to achieve. Based on our experiences, this means that an emancipation process happens on the construction site, where the group is (or wants to be) less dependent on the support of the instructors.

In DesignBuild studios, it is the instructors who provide the studio with continuity and they transfer knowledge from one project to the next. It is they who, for the most part, define duties and contents since they, as professors, the non-professorial faculty and, in rare cases, assistant lecturers, decide which DesignBuild projects will be implemented. Therefore, they are independently making decisions about what they do and control their desired actions in terms of an empowerment. While they are pursuing their own architectural or research agenda in traditional design studios, the DesignBuild studio, through its transdisciplinary approach and the construction itself, offers instructors the ability to develop and maintain contacts with non-academic stakeholders and to not lose their connection to the practice of architecture. In this way, an empowerment also takes place because, as opposed to a purely academic activity, and especially against the backdrop of time-limited contracts in science, they result in more diverse opportunities and career prospects even outside of an academic environment.
Certainly, this perspective also has to take into account that the field of work of the non-professorial faculty in particular depends on the professorial level. However, in the field of DesignBuild, it can also be noted that the projects are often carried or even initiated by members of the non-professorial faculty. With the exception of the Yale Building Project, we are not aware of any DesignBuild studio that is mandatory for graduating from university. This illustrates a type of "free will" on the part of students to participate in a DesignBuild studio.

Many DesignBuild studios emphasise the term "social" and therefore also imply a social attitude with which they intend an empowerment of the future users. In the participatory action research method, the term positive social change is often used, which refers to promoting social justice and equality. According to Angotti, Doble and Horrigan, (2011) a "social action agenda" includes an integrated handling of theory and practice by reducing the gap between knowledge and action. In DesignBuild studios, it is largely the future users that make this integrated handling possible by serving as an interface to society. As opposed to pure recipients, they are an active part of the projects and help shape them[11].

11 This serves as a reminder that the future users are not just the individuals and organisations that operate the buildings but also the target audiences of the projects.

The examination of the characteristic intersections between architecture education, architecture practice and society, which characterise DesignBuild, shows that DesignBuild studios, as financial, aesthetic and programmatic (co-)decision-makers, often also serve as the initiators of the projects.

THAT MAKES THEM A STAKEHOLDER
IN THE DESIGN OF THE BUILD ENVIROMENT
AND THEY TAKE A POSITION IN IT.

Joint perspective

By deciding to act, which, in the case of DesignBuild studios is just as important as the project's physical, constructional implementation, they also reproduce balances of power.

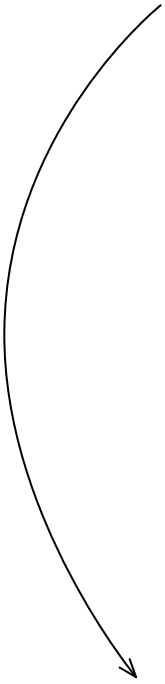
In which form these are exercised is not only part of their

SCOPE OF DECISION-MAKING

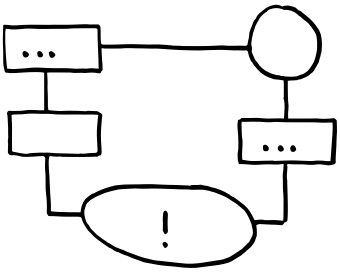
BUT ALSO THEIR SCOPE OF RESPONSIBILITY.

As summarised in the 'Movement' chapters, we identify many potentials in DesignBuild that have not been fully exploited yet.

We hope to underscore these potentials with this publication, point out challenges and pass on approaches in the form of a growing knowledge pool.

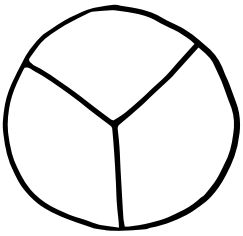


As a result of our perspective as students and instructors, as well as our joint examination, we also want to provide future DesignBuild projects with specific tools.



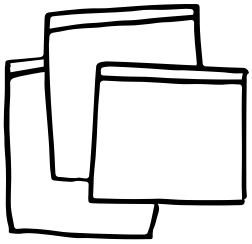
↗ p. 104–105

The **decision tree** shows some of the questions you, as student, instructor or client, should ask yourself in order to decide whether to take on a project or not. Along the way you'll stumble across circles, pointing out factors worth considering.



↗ p. 106–107

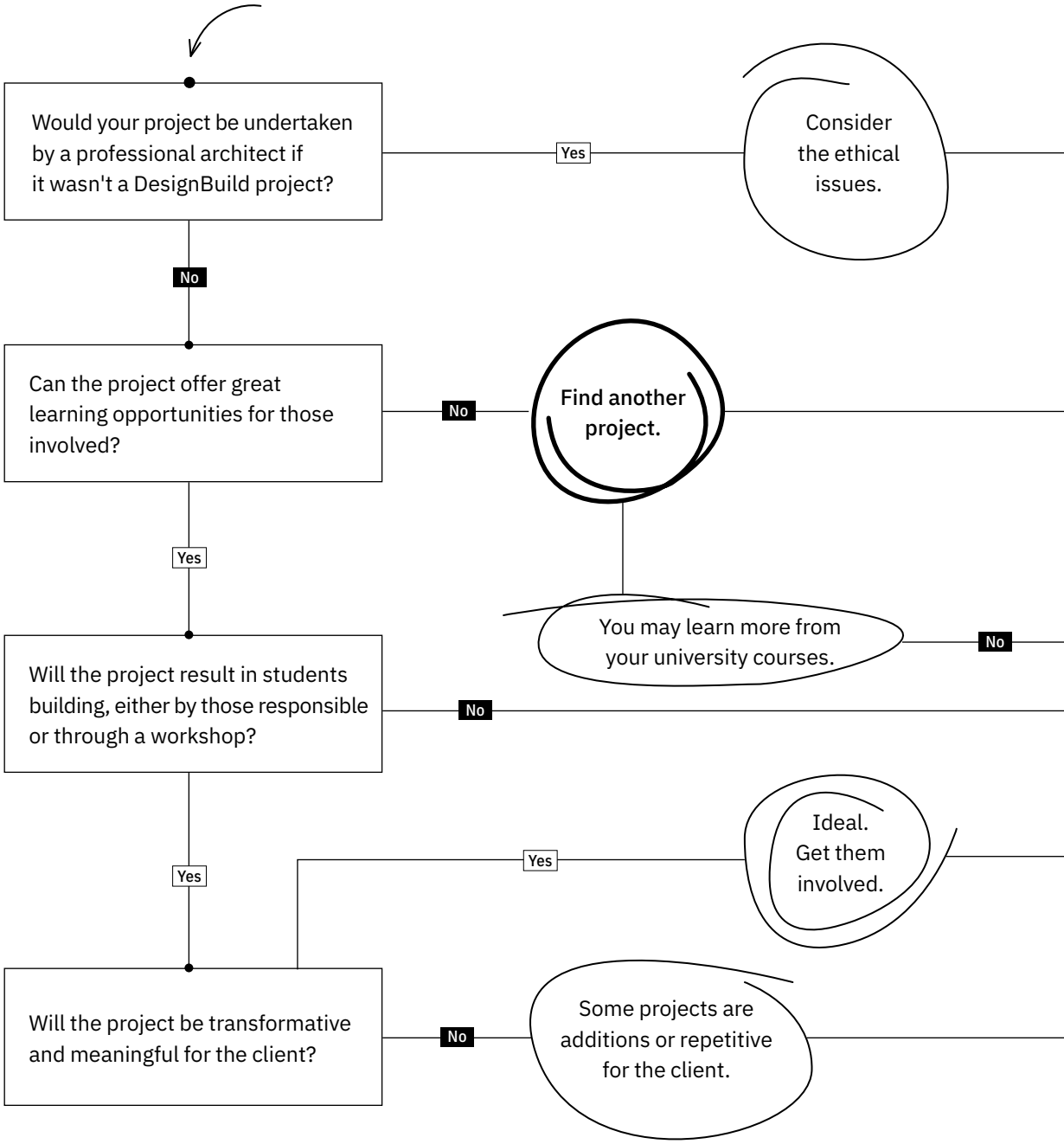
At the beginning of a collaboration (e.g. the beginning of the semester) you may use the **DesignBuild matrix** to start a discussion about everyone's expectations and intentions regarding the project. Just start by placing dots next to the points that you are particularly interested in. Then start a dialogue on the points that attract the most interest (and maybe also those with the least). Every time a new member or collaboration partner joins the team you may repeat it.



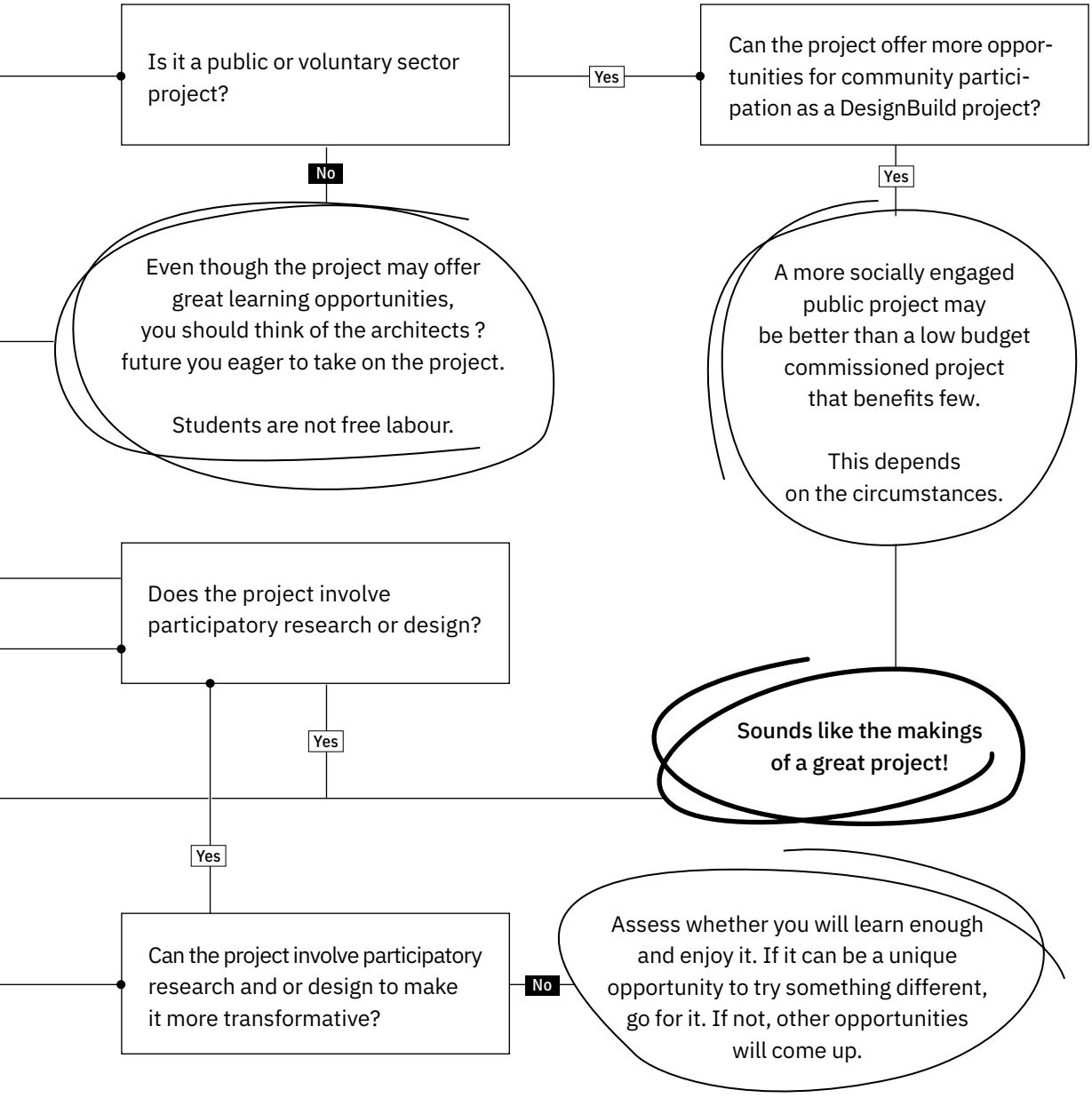
↗ p. 108–109

The **toolset** is an extract of a bigger tool box developed along as part of the master thesis "Design-Build in architectural education" by Perschmann and Budde available online (https://issuu.com/charlotte.perschmann/docs/220120_ma_db_einzelseiten). The idea was the development of a tool box that can be complemented and modified by any DesignBuilder.

The decision tree was designed to help you decide whether an idea is suitable to be implemented as a DesignBuild project.

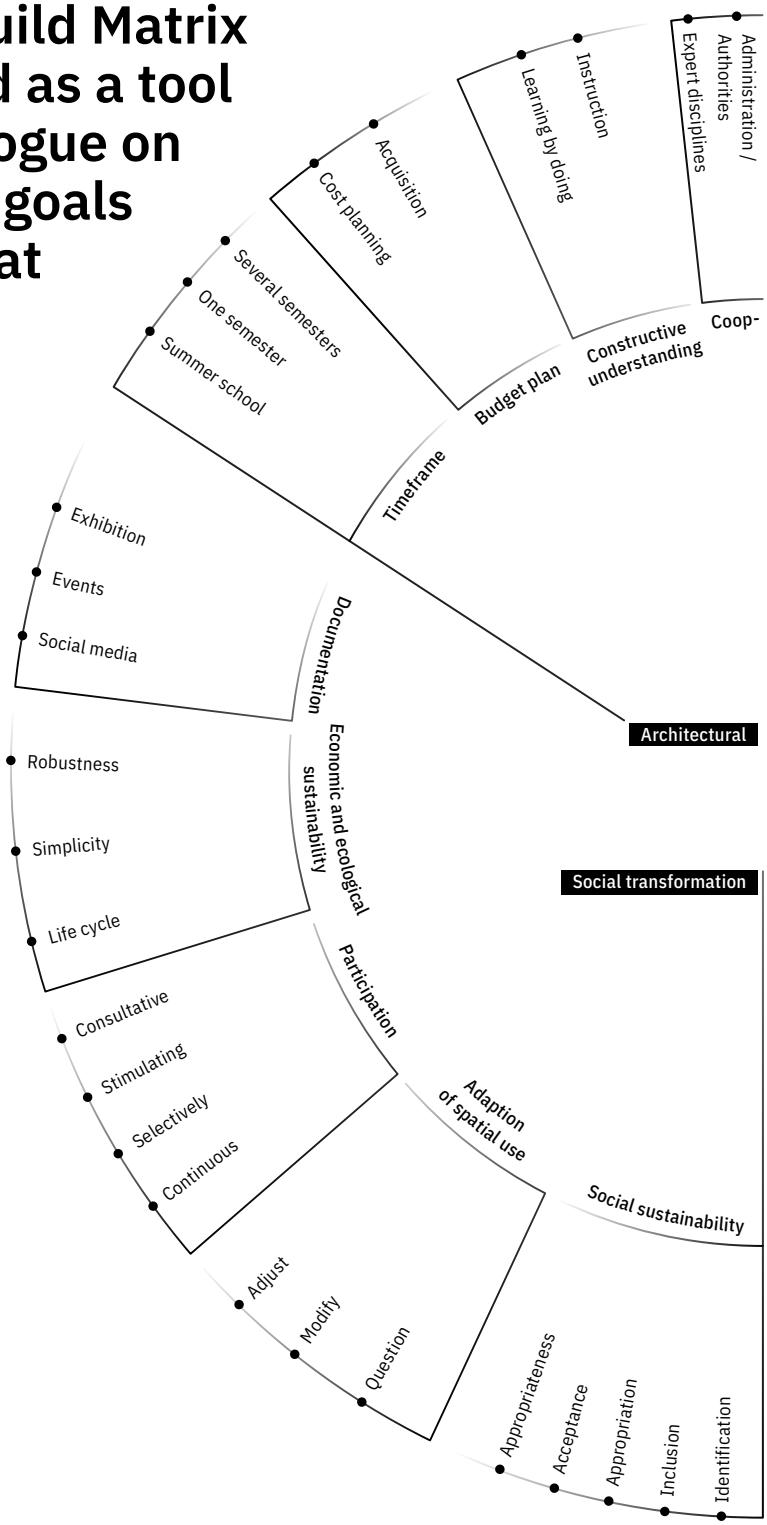


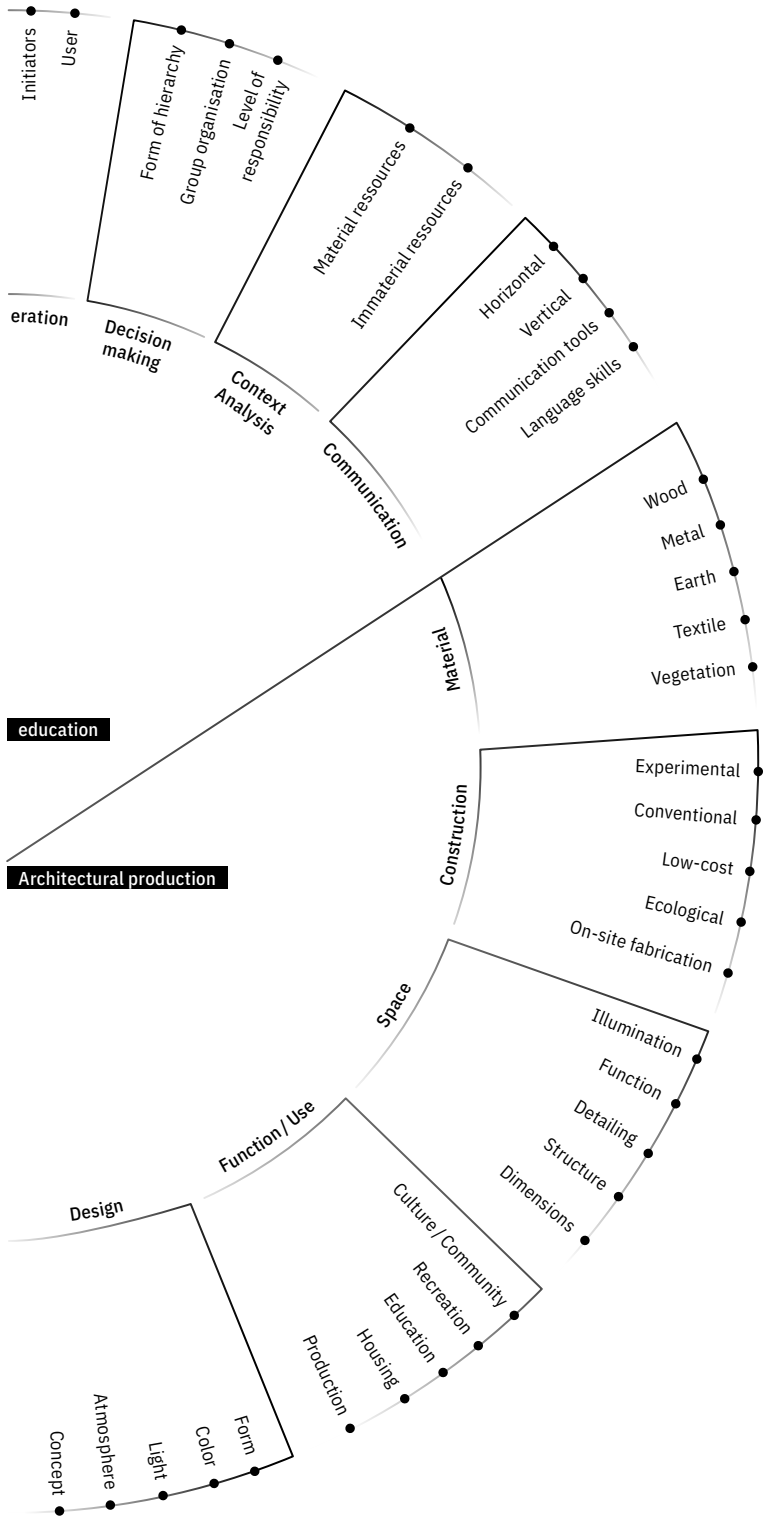
This illustration is based on: Gunleiksrud, Anders, Sebastian Østlie, John Haddal Mork, and Kristin Solhaug Næss. 'Ethical Responsibility'. In NTNU Live Studio Handbook, by Steffen Wellinger, Elena Archipovaite, Hans Narve Skotte, Fredrik Pettersson, Anders Gunleiksrud, Sebastian Østlie, John Haddal Mork, and Kristin Solhaug Næss, 17, 2015. ntnulivestudio.org. – Thanks for sharing!



The DesignBuild Matrix was designed as a tool to foster dialogue on the intended goals of a projects at its outset.

This wheel can never be complete — feel free to use it as an inspiration and extend it according to your own needs.




Initiators
User
Form of hierarchy
Group organisation
Level of responsibility
Material ressources
Immaterial ressources
Horizontal
Vertical
Communication tools
Language skills
eration
Decision making
Context Analysis
Communication
Wood
Metal
Earth
Textile
Vegetation
Material
education
Experimental
Conventional
Low-cost
Ecological
On-site fabrication
Construction
Architectural production
Illumination
Function
Detailing
Structure
Dimensions
Space
Culture / Community
Recreation
Education
Housing
Production
Function / Use
Design
Form
Color
Light
Atmosphere
Concept

These tools for planning, coordinating, building and cooperating were designed to support in DesignBuild processes.

Change of perspective

● Tool Nr. 1 / 45

When: Design and planning
Who: Team and stakeholders
How long: 3 hours

Sometimes it can help to put oneself in a different position. This exercise is about such a change of perspective by switching roles. Architects become engineers, engineers become sociologists, sociologists become craftspeople, etc. On this basis, conversations are held regarding expectations and approaches. This reveals prejudices, leads to a better understanding and an improved overview as well as a better overall grasp of the entire project.

Mini Me

● Tool Nr. 2 /45

When: Design, planning and implementation
Who: Team
How long: not specified

The Mini Me tool works with the potentials of a project team with mixed education levels. The idea is that not only that learning together is very helpful but also learning from each other. If the people in a small group have different levels of education, both will usually benefit. On the one hand by contributing, explaining and answering questions on the part of the "older" ones, and on the other by uninhibited questions and learning from the more experienced students on the part of the "younger" ones.

Regular's table

● Tool Nr. 3 / 45

When: Throughout
Who: Team
How long: 2 hours, twice a week

The introduction of a periodic "regular's table" can increase the cohesion of the team and improve morale. This also provides an opportunity for discussing certain topics, having time for joint reflection or addressing issues or potential areas of conflict. In order to not view this event as an unpleasant obligation, it is important to ensure a relaxed atmosphere, e.g. by combining the event with tasty food or drinks or by appointing a "fun delegate".

Craft day

● Tool Nr. 4 / 45

When: Design and planning
Who: Team and guests
How long: 1 day

This tool is intended to be a type of field trip. Depending on the emphasis of the projects or the tasks that are involved, it would make sense – and be exciting – to go to a production site in order to get a close look at the processes involved and have them explained to the team.

Showcase of transparency

● Tool Nr. 5 / 45

When: Design, planning and implementation
Who: Team
How long: not specified

Transparency is a key factor of DesignBuild projects. If everybody knows what the goal is, what to expect and what they have gotten into, then it is easier to understand, to work together and to achieve a common goal. The showcase of transparency is intended to be set up in a prominent location at the project site and keep everybody, including accidental visitors, up to date on the project and offer integration possibilities.

The old hands

● Tool Nr. 6 / 45

When: Work phase 0, design and planning
Who: Team and guests
How long: 3 hours

DesignBuild projects in particular can benefit from previous experiences. This helps prevent errors and improve processes. There are always students or instructors who have had previous experiences with DesignBuild projects. This experience should be used by inviting them to a meeting.

Neighborhood cinema

● Tool Nr. 7 / 45

When: Design and implementation
Who: Team, neighbours and stakeholders
How long: 1 evening

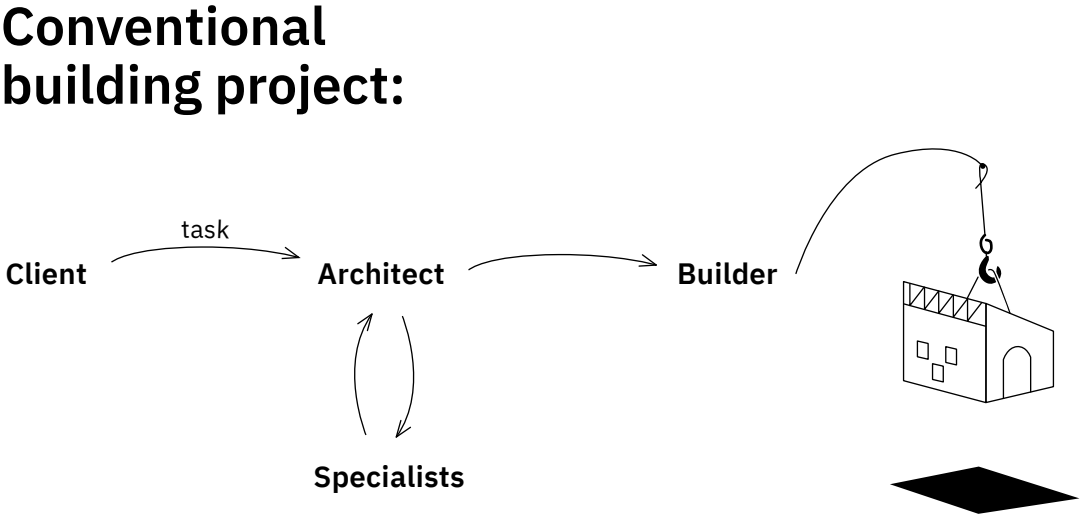
The atmosphere among all participants of the project is an important aspect of DesignBuild projects. In order to improve it, it helps to conduct small events, happenings or informative exhibitions. One option is to organise a joint film night. It does not matter whether it is held, or whether it is improvised on the construction site or structured in a community centre.

Generating tasks

INST Although the design of spaces in order to meet the needs of society as well as individuals remains the central topic of architecture, the role of architects is interpreted and understood much more diversely today (Koch 2008). This changing understanding of roles is relevant for generating tasks for an architecture production. The term "task" refers to defining a construction task with its content-related and logistical parameters, for example programmatic, organisational, environmental and economic aspects. In a conventional architecture practice, this wording is usually proposed to the architects by the client. The task is then refined and always compared with the basic parameters. Things are different when architects serve as initiators and therefore have a say in the tasks, as is the case in DesignBuild studios. Therefore, the following two sub-chapters examine what this relationship, which differs from conventional architecture practice, means for generating the tasks of DesignBuild projects and which requirements result from this. The publications of Schneider and Till on architecture as spatial agency are used as a basis.

The "clients" of DesignBuild projects

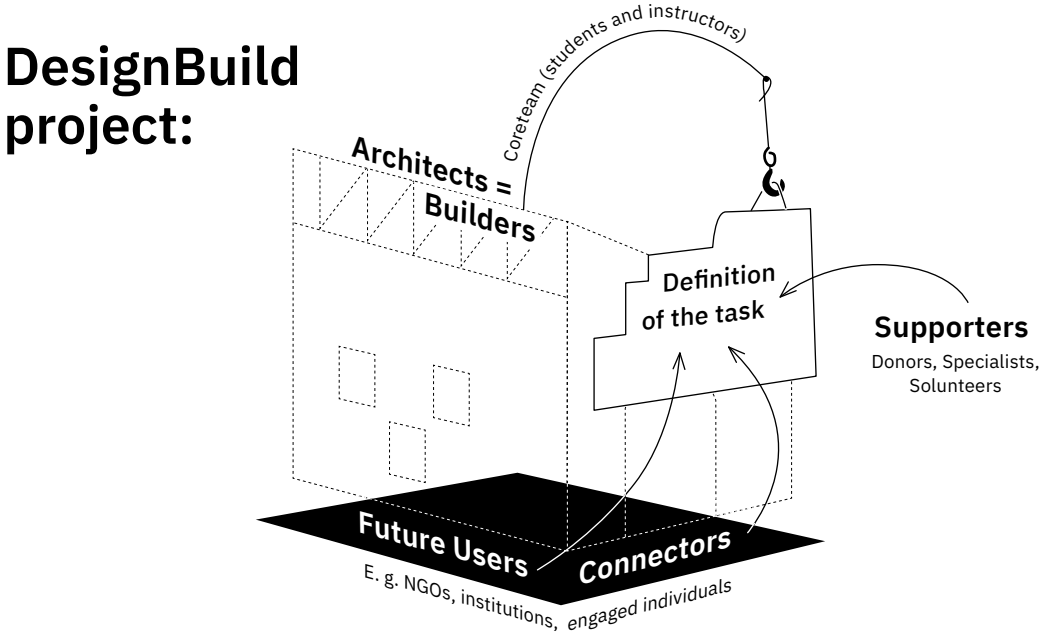
INST In 'Behind the postmodern facade: architectural change in late twentieth-century America', the sociologist Magali Larson describes how the commissioning party always influences the constructed result with an agenda that not only represents economic limitations but also social factors relevant for the creation of the project. It thereby declares the commissioning party to be the decisive factor that no architect can control ... unless in the unlikely case that the architect builds for themselves. The wishes, taste and the money of the commissioning party determines the building contract. Building contracts, on the other hand, not only guarantee the architect's livelihood, they also make it possible for them to create constructed examples (Larson 1995, 13). This description shows which role Larson assigns to the commissioning party, i.e., that of the financial, aesthetic and programmatic decision-maker. As shown before, in DesignBuild projects, the future users often act as initiators (and possibly also connectors) together with the DesignBuild studio. This is evidenced by the fact that many construction projects that were implemented as DesignBuild



projects would not have come into existence on a conventional contractual basis with architects. The reasons for this can usually be found in the interconnected economic, legal and process-related aspects that are differentiated below.

With regard to economic reasons, it can be noted that the projects are partially implemented as collaborations with partners that could not (or do not want to) afford an architectural service. It is also possible that the group of potential future users has not found itself and hasn't consolidated in order to make a financial contribution. However, the format of a DesignBuild studio permits a cross-financing of the projects through the labour of students and instructors and, as a result, also through universities. It also offers opportunities for obtaining non-conventional financing for the construction projects. This includes sponsoring, foundation grants, crowdfunding, etc., but also the hours that those supporters work who are taking advantage of the unconventional project process.

With regard to legal aspects, it should be noted that the majority of DesignBuild studios are based permanently at European or North Americans universities, and therefore in countries with architecture chambers. Normally, it would hardly be possible for DesignBuild studios here to take over construction projects while observing the applicable remuneration rules and regulations as well as the available resources while also taking the curricular structures into account. In addition, ethical aspects for the profession also play a role since there can be no competition to professional architects, i.e. no jobs are meant to be taken from architects (↗ p. 94–95). That is why many DesignBuild studios, especially those focusing on larger built structures, are trying to complete projects in contexts without currently applicable building laws. This usually means structurally weak regions, which once again means that financial aspects play a role. Another approach is to implement projects that are not subject to regulations, such as installations or small conversions, furnishings or temporary structures. These might also be experimental approaches that result in projects that would hardly have been realised in a conventional architect-client relationship. This is similar in the case of specific, process-related aspects. In this regard, it should be noted that DesignBuild studios often serve as a type



of laboratory for unconventional construction projects. More than construction technology-related or material experiments, this refers to the constructed object as an experimental approach to an ongoing transformation process. As a result, the project has the character of an incubator or an object that can be used for research or gaining insights. Programmatic ideas can be tested as well. The usage requirements do not necessarily have to be immediately apparent, but they offer DesignBuild studios the opportunity to implement the project.
What can be concluded from this analysis, which looks at possible reasons why DesignBuild projects would not have happened in a conventional contractual basis with architects? How does this affect the definition of the "clients" of DesignBuild projects?

As we have demonstrated, many construction projects would not have been (or only without the participation of architects) implemented if the DesignBuild studio had not been part of the initiators. Together with the future users and possibly connectors, the studio therefore plays a role in defining the tasks and, as a result, the separation between architect and client as described by Larson is therefore dissolved. The "client" is no longer an uncontrollable factor. Instead, the DesignBuild studio itself permits the implementation of built spaces and therefore participates in making financial, aesthetic and programmatic decisions. That means it also becomes part of the role of the commissioning party.

Tasks as political positioning – "spatial agency"

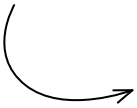
INST In their article 'Beyond Discourse: Notes on Spatial Agency' (2009), Schneider and Till illustrate how the majority of the built environment is not associated with an "architect-author". They describe how the title of "author" also implies a type of authority in meeting the job description. This goes hand-in-hand with the image of an architect as someone who initially develops ideas, then acts as author and then implements the project. As is common knowledge, Schneider and Till describe this type of perspective as not based in reality. Because architecture is not produced by a single person but rather through the interplay of many stakeholders and factors. Still, the myth of a single architect as "hero-author" still prevails in public opinion. In large part, their observations match those of Crinson and Lubbock. Due to the fact that architect and authorship are rarely equated with the built environment, Schneider and Till believe that architects fit the image of the "anti-hero", which they define as: "someone who co-authors from the beginning, someone who actively and knowingly gives up authority. Someone who doesn't work in the foreground but takes a step back. Someone who is part of the process, and sometimes but not always the initiator of the project" (Schneider und Till 2009, 97). With this description, they introduce architecture as spatial agency , which focuses on the possibility that architects can play an actively transforming role: "In contrast, spatial agency, when read as a continuity of action and occupation, means that all agents involved in the production of a building have to face up to their social responsibility because they are always tied into a temporal chain and so must always be alert to events further down the line over which they have some (but not total) influence" (Schneider und Till 2009, 99). They are basing their definition of agency as "action that makes a difference" (Schneider und Till 2009, 109) on the work of the British sociologist Anthony Giddens. He defines that agency presumes the ability of acting differently (Giddens 2013, 216). He explains further:"[Agency] means being able to intervene in the world, or to refrain from such intervention, with the effect of influencing a specific process or state of affairs" (Giddens 1984, 14). In the current debate over architecture, this attitude is made clear in the first sentence "We need a new spatial contract" of the press release that announced the renowned 17th international architecture exhibit La Biennale di Venezia 2020. In addition, it says: "In effect, Biennale

Architettura 2020 asserts the overlooked role of the architect as both cordial convener and custodian of the spatial contract" (Sarkis 2019). It also produces the image of the architect as the responsible party but also as an active decision-maker in the sense of a social contract.

An intrinsic question of the spatial agency, as well as the starting point for the examination is the role of clients, or, to be more precise, how and by whom the tasks of architects are generated. A question that also hints at the balance of power in the built environment, and therefore the political positioning, as Till and Schneider emphasise: "we argue that architecture as a discipline is inherently political and therefore immanently critical: either by negating or conforming a position" (Schneider und Till 2009, 98). This political positioning is to be understood as defined by French culture critic Roland Barthes – as an active role within existing social structures and their respective decision-making authorities (Barthes 1972, 143). With this attitude and referring to a collaborative method, Till criticises the conventional practice of generating architecture tasks in professional practice as follows in the preface to Architecture, participation and society: "What right does any profession have to determine the course of its own operation, and on what basis can the voice of the user possibly be denied?" (Till 2010).

In their work, Schneider and Till therefore call on those creating architecture to be aware of the responsibility that creating architecture entails. Architecture is political by nature. A critical attitude is immanent in this regard: either by rejecting or accepting a position. What does that mean for DesignBuild?

As demonstrated above, DesignBuild studios, which assume a partial role as initiators and "commissioning party", are also among the project's decision-makers regarding financial, aesthetic and programmatic matters. By referring to architecture as spatial agency according to Schneider and Till, there is a central aspect that, by deciding to act, balances of power are always reproduced in the case of DesignBuild studios, and that they are equivalent to the physical constructional implementation of a project. It is therefore up to those taking action to decide whether they want to exercise and exhibit this power or not, and therefore also influence the built environment as well as society.



Conclusion

STUD+INST We have demonstrated from a joint perspective that the focal points, motivations, intentions, procedures and consequences of DesignBuild projects are just as diverse as architecture itself. The analysis of their historic development shows that DesignBuild is much more than an isolated phenomenon. Rather, it is an international movement in architectural education that has its roots in the protest and reform movements of the 1960s. In addition, it can be concluded that DesignBuild studios, in different contexts and with different approaches and focal points, have always attempted to advance changes to the rigid system of architectural education. They are dedicated to construction tasks that significantly differ from those of a conventional design studio. To do so, they are using the tools of a collective process that includes building the designs, going through the complete project cycle and working with non-academic collaboration partners.

In this way, they want to bridge the increasing gap between designing and building and thereby create an added value in architectural education. Instead of just being in step with actual practice, they want to be practice shaping while conveying a specific attitude toward architecture. Through their work, they often react to current local and global development and challenges that serve as triggers for the projects. A majority of the studios therefore do not only want to help transform architectural education but also architecture practice in our society.

The examination of the characteristic intersections between architecture education, architecture practice and society, which characterise DesignBuild, shows that DesignBuild studios, as financial, aesthetic and programmatic (co-) decision-makers, often also serve as the initiators of the projects. That makes them a stakeholder in the design of the built environment and they take a position in it. By deciding to act, which, in the case of DesignBuild studios is just as important as the project's physical, constructional implementation, they also reproduce balances of power. In which form these are exercised is not only part of their scope of decision-making but also their scope of responsibility.

As a mutually supporting partnership between academic and non-academic stakeholders, they intend to have a short-term and medium-term impact (outcome) on the three levels of the areas of tension in which they operate:

- Conveying decision-making skills as part of architectural education
- The constructional and spatial change as a form of architecture practice
- Empowerment as a social attitude

However, fractures can be detected when comparing intention and reality, and these have to be viewed as challenges. They are caused by the integration into the academic system, the type of their public portrayal and, in general, their intersecting position between academic and non-academic environments. Against the backdrop of these challenges, and since DesignBuild projects always intervene in an existing system of stakeholders through the constructional manifestation and their collaborations, the aspect of ownership of the projects is of central importance for the empowerment of DesignBuild. The actual transformational potential of the projects is therefore directly related to the roles of collaboration partners in the projects. The area of tension that is characteristic for DesignBuild offers great potential but, as a result of the many specified framework conditions, also poses a major challenge.

In addition, when taking into account that the individual studios pursue very different approaches, it becomes clear that a generalised statement regarding the actual agency of DesignBuild as a movement is not possible, and making one was also not our intention. Instead, it is the specific context of the projects that has to be taken into account when examining them.

This work symbolises an important reflection of our own commitment in the field of DesignBuild as students, instructors and "networkers", and in this sense it also reveals perspective for a future development. At its core, this strengthens the previously intuitively used distribution of roles within a largely horizontally organised core team.

At the same time, it becomes clear that the basic constellation of the project serves as the foundation for the extent of the implications of the projects and that these are therefore codetermined essentially from the very start of committing to the project. This requires a sensitive handling of selecting the projects that recognises the role of the DesignBuild studio as a part of the initiators and is aware of the implicit responsibility and the work that is required.

This, in turn, is based largely on experience. In the rarest of cases, the students can do this on their own, which is also an argument against turning DesignBuild projects into a completely self-determined educational format. Instead, it is the composition and the type of cooperation of the entire team (core team, future users, supporters and possibly connectors) that can generate an added value.

> "And it is through our acts of collaboration and co-learning that we develop a shared community – one that values university–community reciprocity and engages in mutual transformation, co-evolution, and change" (Bose u. a. 2014, 31).

In particular, diversity and the accompanying variability afford the practice-oriented DesignBuild method the opportunity to react to specific societal changes and topics. DesignBuild not only reacts to the changing demands of society but also offers an opportunity to actively test, check, question and redefine them. In order to achieve this, the project must have a theoretical component and require reflection. This can help with making a contribution to a future-oriented building culture and demonstrating new ways of doing things to students and future architects. In addition, a scientific aspect leads to the establishment of a positive culture of learning from mistakes and is therefore of central importance. As a result, more time has to be scheduled for a thorough execution and the projects therefore become more complex.

Joint Perspectives examines DesignBuild as a method, bundles our knowledge and shares our combined experiences. The matrix on p. 106–107 should be viewed as a recommendation on how to act and not a manual. It is not meant to limit DesignBuild projects, because it is especially their diversity that can make a key contribution to research and the further development of architecture (education), which offers a special development potential in an unlimited area of tension.

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As part of an international consortium she co-initiated and co-directed the development of the online platform dbXchange.eu within a research project funded by the European Union from 2013- 2016.

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At the intersection of academic and non-academic environments, DesignBuild projects offer a wide range of perspectives: they connect ivory towers and construction sites, CAD drawing programmes and circular saws, students and non-universitarian collaborators. They operate in the field of tension where practical experience, research and teaching meet. Against this backdrop, DesignBuild_joint perspectives focuses on a collective reflection on DesignBuild as a method of architectural education through the eyes of two main actors: instructors AND students.

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