ARCHITECTURAL DESIGN STUDIO COURSES IN AND OUT COVID-19: ADAPTIVE PROCESSES IN ACADEMIC KNOWLEDGE EXCHANGE

A B S T R A C T

This paper elaborates on the work of the Growth 2.0 design studio at the Faculty of Architecture in Skopje that, over the years, has built its own methodology around different modalities of collaborations, prompting immediate and direct exchange of knowledge in the learning process. Restrictions in movement and access to other commodities, caused by the Covid-19 pandemic, have shaken every sphere of society, including education as it was inevitably transferred from the physical classroom into online forms of communication. Such a major shift especially reflects architectural education that basically evolves around the very notion of space, spatial practises and physical encounters.

History has proven that in times of 'crises' (as the pandemic certainly is), new ways of thinking emerge that further instigate novel and innovative acts and deeds. Nevertheless, education being conceived as an act of continuation by sharing and exchanging knowledge, could not withstand a rapid shift without leaving a rupture in the process. Therefore, this paper shows how pedagogy and methodology changed in the Covid-19 era to adapt the particular circumstances of physical distance and isolation in the framework of the design studio, adjusting design tasks and communication tools as new modes of collaboration.

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INTRODUCTION

Architecture as a discipline has particular ways of creating knowledge that emerge out of architectural practice, while as a form of design, practice itself is greatly concerned by the ways this engaged architecture and design knowledge is communicated and disseminated in the process. Despite the interconnections, we point to the distinction between architectural production and the process of creating architecture that constitute architecture as a design project.

While the academic notion of theory and history within architecture and design discourse is mainly based on the description of architecture as a design product, the discourse of the design process, of design itself, seems to be rather missing. As a result, when talking about architectural production, it generally speaks of the multitude and diversity of objects that not necessarily communicate architecture and design as a unique form of knowledge. In that manner, Clive Dilnot raises the question of design knowledge as one that cannot be separated from the contribution that it makes to knowledge in general.[1] For the first argument, he positions design knowledge between science and humanities as it deals both with things and people. In this paper, we would like to bring to the fore the specificity of architecture and design as a form of knowledge that, besides the notion of architectural artefacts, considers the relations between people and objects and between society, culture, and material artefacts. We showcase this through the work of a design studio at the Faculty of Architecture in Skopje. Moreover, Dilnot argues that design knowledge is rather prescriptive than descriptive and therefore needs to position itself between instrumental reason ('theory') and praxis ('doing'). He postulates that for design knowledge to advance, practice itself is not the key, but the single cases of 'a project within practice' that essentially make up practice. This constitutes the discourse of the design process, or what distinguishes the product as 'things made' from 'things in the making', and speaks of projects that need to be conceptualized, as the basis of knowledge central to the act of form-generation that is in the foundation of architecture and design. This has also been of prime concern in the particular design studio methodology that is elaborated later in this paper.

In line with Dilnot's discussion about architecture and design knowledge, Jan Verwijnen[2] interconnects design pedagogy, design thinking and design practice. His personal example of an architect that is actively involved both in the public life and in the academia has influenced greatly the curriculum of the schools where he taught. His persistent explorations in the notion of the concept in design are always centred around the creative innovation derived from architectural

knowledge and the question: How can we produce particular knowledge that is related to the generation of form? Verwijnen has developed a scheme that represents the design process through three crucial steps in processes of form-generation, suggesting that these steps and the jumps between, would be most relevant for architectural research. The first level is the analysis and theory as 'a terrain of cognitive theoretical logic, 'pure' reason, instrumental rationality and determinate judgement'.[3] In current conditions of architecture and urban planning, dominated and represented by flows of information, images, capital, goods and people, influenced by the capacity of new information and communication infrastructures, this level has grown rapidly in importance as it is found in the great amount of data that nowadays any new project needs to deal with. The second level is a conceptual one, 'existing at the edge between immaterial ideas and the world of real objects, between the virtual and the real.'[4] At this level ideas and objects operate via rather diagrammatic images that often involve analogies and association in a particular kind of decision-making as discursive systems of thought that concepts tend to relate to. The third, and the last step of the design project, is the final form, or 'the way things and products present themselves in their material form'[5]. Despite the fact that this has generally been the domain of the categories of style and art history as a form of descriptive knowledge, in the prescriptive manner, the final form is very closely related to the previous steps and finds its strength as a form that is cognitively informed and that is capable to perform, to relate and give meanings to people and the surrounding.

Therefore, the values and the advancement in architectural and design knowledge is not so much to be looked at in design practice, but rather in the design project - what they mean as ideas, as concepts that work through the project's presence in the world. This paper addresses in particular the pedagogy of the Growth 2.0 studio that evolves around the acknowledgement of *the concept* as more important in design than the description of the form of the things.

1. PEDAGOGICAL VALUES OF THE DESIGN STUDIO

Much of the discussion about higher education in recent decades has revolved around the position and the role of university in modern society. Additionally, in the global world where people and information travel wider and faster than ever before, there is an apparent need to rethink the most suitable approaches in architecture education, along with the question of the position of the architect and the possibility of architecture to have a profound impact in the contemporary society. The perpetual technological advances and social changes

make it impossible to grasp a solid ground, or to have a univocal point of view on what is the real impact of architecture and the architect in current global societal structure and what the real role of architectural education is in the fluid system of liberal democracy. Moreover, the world we live in is driven by the economy of new types and forms that never truly succeed to meet the ever-growing demands and ever-changing conditions.

Such great uncertainty and instability call for a shift in priorities within general education, moving away from the imperative of advances in skills towards training openness and readiness to embrace change and novelty. Since information and knowledge are becoming more accessible, it is not a question of reaching information or obtaining a position on certain issue, but concerns making selection of the relevant ones, being able to critically re-think them and to evolve personal creative and innovative contributions. Regardless of the persistent rhetoric of 'the new', and the pressure of producing novelty, it is of a key significance for architecture students and professionals to distinguish the design project from the vast field of design production (design practice). Therefore, it is not so much about the quantity or diversity of knowledge obtained at schools, but rather how to learn in order to be capable to respond to the uncertainty of the forthcoming challenges in architecture.

In that sense, this paper focuses on architectural education at schools, and particularly follows the work of Growth 2.0 studio at the Faculty of Architecture in Skopje, where we see our responsibility as teachers not only to teach students the most advanced skills, but also to trigger their sense of openness and readiness to embrace the novelty and perpetual change in reality while developing meaningful, thoughtful and ethical design projects.

1.1. Learning Through Design In Architectural Design Studio

Teaching and learning in architecture design studio is widely accepted and implemented as the core of architectural pedagogy. As a project-based model in learning architecture, the format of design studio is intended to prepare students for the architectural practice. According to Donald Schön, the pedagogical value of the design studio lies in its capacity to open a window to the professional practice and the process of architectural designing through experiential learning which is considered a unique mode of learning and teaching. It is described as an immersive learning environment where teachers and students are required to make clear to one another 'what it is they do when they design'.[6] Nevertheless, a design studio is not just another simulation of 'the office' space, but a specific

way of thinking and learning that understands design environment both as an office and an agora. The design knowledge, thinking and understanding generated in the design studio and the experience and knowledge that is transferred from practice is essential to the field of architecture. Therefore, what students learn in that process is greatly influenced by how they learn.

In an age where measurement, evaluation and accountability greatly influence education, looking for most suitable ways of teaching and learning, Ronald Barnett argues for a focus on the human, bringing the attention onto the student and consequently the associated question of what then it is to be a teacher in higher education. His proposal to move away from the preoccupation with the epistemological and to consider instead the ontological could mean a turn to an approach in learning and teaching towards certain dispositions rather than merely knowledge and skills. He defines design as a curiosity, a will to explore, engage and imagine, and eventually a will to learn through collaborations.[7]

Another turn in both the practice and learning architecture is the shift from a teacher-centred mode that is associated with traditional master-apprentice model, towards more collaborative approach that also shifts individuality and personal-bias practice towards vivid communication and open criticism among pears. Since design is essentially a collaborative act, it is of significant importance how the architectural and design knowledge is communicated and disseminated among multiple agents involved in the process.

For that reason, a method of collaborative learning is emerging in many schools. It is particularly suitable as an approach in architectural design studio that intends to overcome the problems of the traditional approach in education. Whereas in the traditional approach teachers are the only source of authority and knowledge and students have a rather passive role, collaborative learning is a group learning mode where students are active participants in learning through communication and discussions. The authority and responsibility that were traditionally assigned strictly to the role of the teacher are being transferred to the students by involving them in group-based exercises that address certain concept and topics.

In the case of design studios, such disposition of the roles of students and their interactions results in the change from traditional studio characterised by master-apprentice relations to a collaborative studio, where students become active contributors that discuss their positions and construct their ideas in less hierarchical communication on peer-to-peer basis among all members, students

and teachers. It refers not only to the communication in comprehension of design challenges, but also the communication that leads to conception and articulation of ideas. Therefore, in regard to the fact that architectural design is always a collective act, a collaborative studio is basically presented by collaborative design as another aspect of collaboration that allows students to evolve their ideas by questioning and discussing them with their peers in the same group. Given many difficulties that such discussions may bring, and the possibility that in the clash of ideas not always the best solution wins, one can argue that it is the discussion that has proven to be more important than the result itself.[8] Immediate communication and discussions also stimulate critical thinking as important virtue to involve in a creative and innovative design. This, once again, brings the conception phase to the fore as key attribute of the design project, and substantial stage in the process of generating forms.

1.2. Architectural Design Studio As A Research Laboratory

Whereas architectural design (or design in general) is understood and undertaken as a pedagogical process in the design studio at architectural schools, it does not only refer to the educational frameworks, but it is also very closely associated with the fundamental values of a professional being. The question of architectural knowledge is inevitably related to the question of what architectural research or design research is about? It is not only tied to the scholars (students and teachers), but concerns professionals in practice as well in creating innovative and meaningful work.

The collaborative model in the design studio not only brings together students and teachers as reasonably equal participants, but also brings together their somewhat different professional goals: the design studio is a space where teaching, learning, and researching design, as separate activities, can be done to varying extent, mutually and collaboratively, between students who learn and teachers who do research.

In his seminal work on creating knowledge in design practice, Christopher Frayling differentiates various approaches to design research that we find relevant to the work within design studios at architectural and design schools. He distinguishes three modes of doing research: research 'through' design, research 'into' design, and research 'for' design that alter in the perspective, the purpose and the outcome.

Frayling describes 'research for art and design' as 'gathering of reference materials', where knowledge is embodied in the artefact as an end-product that communicates in a 'visual, iconic or imagistic' sense.[9] Research for design is done by designers and for the purpose of designing, usually outside academia. It is what designers do when they gather information to guide design decisions: knowledge-finding and analyses done to ensure the rightfulness of the final product, i.e., the final form. Since design studio is a transformative process of learning in which students discover their abilities as designers, this category is important to be presented and experienced to certain extent inside the education as well.

According to Frayling, 'research *into* art and design' refers 'historical research', 'aesthetic or perceptual research' as well as 'research into a variety of theoretical perspectives' on the practice.[10] It is research 'about' design and is usually looked from different perspectives outside the design field (psychology, anthropology, education, philosophy, etc.), where design or architecture, and designers or architects themselves become the subject (rather than the purpose) of research. Bringing different views on the subject, research into design not only informs but creates valuable educational materials and therefore becomes a focus especially for teachers as educators.

As the third in Frayling's categorisation, 'research through art and design' describes design practice as the methodology that creates the knowledge, which is 'being achieved and communicated through the activities of art, craft or design'.[11] It requires both perspectives: from outside and from inside design, or architecture. This means that a problem is taken outside design while design is used to address the problem. Hereto, architecture and design are taken as particular thinking and a particular knowledge which helps to understand certain issues that exist outside design. It often relates to academic concepts, but it is also done in practice within the commercial world, although using other than academic vocabulary. Frayling gives examples in 'materials research', 'development work' such as customizing technology, and 'action research', where processes of doing and reflecting iterate upon themselves, but in more recent years it became evident in modern product development, such as prototyping or user-studies that are using design and create artefacts, not as a single final form, but as a tool for further learning and creating knowledge. Such laboratories can be found in the structure of universities and the open market sector, but in most of the cases it requires close collaboration between both.

Frayling's approaches inspire interpretations where varying perspectives between the activities of students as learners and teachers as researchers are developed, revealing potential overlapping spaces of learning and research for both students and teachers within the design studio course. In that manner, the Growth 2.0 design studio, conducted with students of the final (fifth) year at the Faculty of Architecture in Skopje, superimposes these lenses of research design, and overlap the practices of teaching and learning with research design, which allows us to reflect on it in the next part of this paper.

2. DESIGN AND RESEARCH IN THE GROWTH 2.0 STUDIO

In addition to the general stances on architectural education, and particularly on the potentials of design studio in architectural schools, we reveal the work of master design studio Growth 2.0 at the Faculty of Architecture in Skopje, established by the authors as a research laboratory, to contribute to the built environment knowledge. It takes a crucial part in the school curriculum, among a large number of subjects and courses that cover a rather vast field of general knowledge, in the final year of studies, prior to the master theses. It is defined as 'integrative design studio' where it is possible to integrate technical skills and theoretical knowledge in a creative way while drawing inspiration from a broad body of already obtained learning experience.

In general, Growth 2.0 investigates transformative specifics of urbanity in the condition of continuous quantitative change. It follows the concept of growth as an inherent and vital feature of every city, and explores its various possibilities in terms of size, volume and density. It refers to not only the built, but also the unbuilt as equally valuable resource for the city, and therefore investigates the possibilities for de-growth as part of conceptual understanding of urban growth. Although studio work evolves around research and design tasks reflecting various topics relevant to contemporary urban environment, growth is being tested through the potential of the collective realm of urbanity in each studio session. It is recognised as a dialectical amalgam capable to bridge public and private interests within metropolitan areas by identifying existing and inventing new social relationships, speculative spatial possibilities, and testing the capacities of the build mass, urban voids, and distributive networks of the city. The work embraces various programmatic constraints from housing and the myth of domestic space to public space and architecture of collective hedonism.[12]

For six years in a row, the Growth 2.0 studio has been using the city of Skopje as a test bed for developing different approaches and projects for city-building, or what we have termed 'architectural urbanism', since it operates on various scales in the architectural analyses and envisions. The outcomes aim to represent the autonomy and the symbolic value of architectural artefact as cultural condenser marking the city-building as metropolitan effect.

2.1. Pedagogical Tools And Methods

Since the studio deals with the realm of 'architectural urbanism', studio projects developed within Growth 2.0 always operate between different scales, aiming to encourage critical use of architecture through polemical exchange, and to produce contextual provocations as a strategy of architectural urbanism, thus capable to communicate the particular architectural knowledge. In that process, different tools and methods are used and developed in order to create contemporary urban narratives. Among many possibilities for employing all kinds of tools available to architecture research and design, the Growth 2.0 studio always insists on the following three: *scale, references*, and *exhibition* as key aspects in all studio sessions up to the present.

Scale is a well-known tool in architecture that allows different optics when addressing various levels engaged in architecture from territorial, through urban and architectural, to the details (Figure 1). The nomination of architectural urbanism requires the involvement of different scales both in analytical and the creative phase of the project. Oscillation between the scale of urbanism and the scale of architecture, going in both directions back and forth during the process of thinking and also in the latter stages of design, becomes a specific method in understanding and developing meaningful architecture for the city. In addition, scale manipulation can be used as a tool that completely changes the way architecture is experienced and the socio-spatial relationships are perceived.[13] Apart from the conventional importance of scale as referential element in built environments, scale also addresses social relations. That means using different scales for understanding the actual condition of a site, where each scale refers to a person that has a relation with that site, or an area of reach that particular amount of people have, which ultimately assigns different meanings and appropriations: from the intimate and individual, through the common and the collective, to the public domain.

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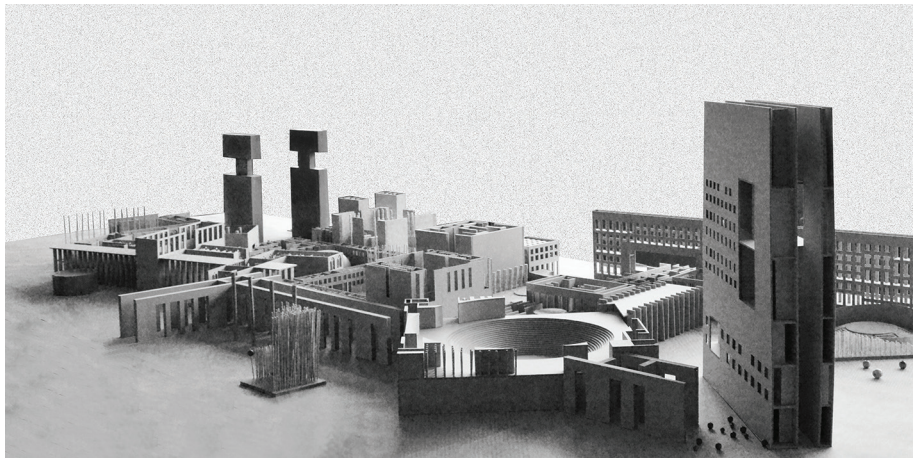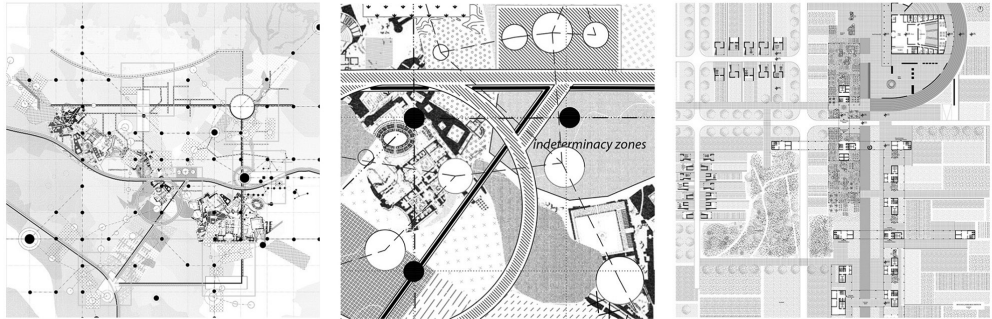
UP: Fig. 1. Operating between different scales: territorial, urban and architectural. Segments of student work in Design studio Patterns of Growth: Unnatural Ecologies (2017/2018)..

DOWN: Fig. 2. Analogous city: aggregation of formal analogies of singular projects developed by students in Design studio Patterns of Growth: Residual Form (2016/2017).

References are inevitable source of knowledge and ideas in any design research, and in any design project for that matter. In particular, the informational virtue of architectural reference represents a significant part of the work within the Growth 2.0 studio. The value of references lays its foundational principles in the relational information they establish between the general theme and specifics of the researched subject. They represent the cognitive theoretical level as Verwijnen has described the first step of the design project, based on their ability to bridge the gap between a design task as a starting point in design process and the final stage of the design production. The studio work includes both the directional and the semantic values of references that instigate student's personal ideas. Throughout the process of design in the Growth 2.0 studio, references of various sources are used in different ways and phases, such as, for example: from discursive analyses, thorough models by analogy, to assigning new meanings by re-contextualisation of the findings gathered from the observed referent case.[14] Although architectural references derive their significance in the form of personal understanding being inscribed through their subjective analogical rethinking. In our experience, they also proved themselves as simultaneously generic and therefore represent a communication tool between our own convictions and general circuit of information (Figure 2).

Exhibition is considered an end point and an event of representation that crown a research or design process. Nevertheless, in Growth 2.0 we utilize the relevance of exhibition also in the form of pin-ups, interim reviews and guest critiques as a communication tool among studio members, in the process of learning architecture. All kinds of exhibitions are a vital part of the collective studio effort, and are important segment of the project itself (Figure 3). The final studio exhibition is predetermined as part of the seminal Architectural Design Studio Exhibition (IAS) that the Faculty of Architecture organises each semester exposing the curriculum through the work of all studio units. Studio Growth 2.0 is always presented in the classroom that has accommodated all other modes of the studio work over the semester, transformed once more for the purpose of representation and communication with the others, coming outside the studio group: students, teachers, local citizens, and guests.[15]

In addition to the final exhibition, the extensive content of each of the studio sessions is being reassessed in a printed publication (Figure 4). It reflects not only the results but, more importantly, the whole process of working and learning during a particular studio session. Furthermore, appearing in a series, these publications form a self-reflective and autodidactic archive.

UP: Fig. 3. Exhibition followed by discussion: final presentation of the work of Growth 2.0 design studio: Narratives (2017/2018) at TU Delft..

DOWN: Fig. 4. Archive of knowledge: publications on the work of each studio session of Design studio Patterns of Growth / Growth 2.0 (2014-2022).

2.2. Pedagogical Procedures

Centred around creative thinking, the Growth 2.0 studio is exceptionally focused on the learning methods and the learning environment. Although each year its scope, the scale and the nature of design task are different, the studio methodology is at all times structured around specific pedagogical procedures that are considered essential for developing research-based projects that in turn provide creative and responsive strategies for the city derived from the conceptual and critical thinking.

Growth 2.0 is always organised around different forms of collaborations as methodological and pedagogical tools: collaboration is understood and undertaken both as a mode of working and a mode of learning (Figure 5). The studio intentionally deploys aspects of collaborative learning and working to build a participatory learning environment, where complex issues and problems are understood and solved through different forms of collaborations: among peer-students and professors as well as engaging audience and experts beyond the classroom. As a mode of learning in the design studio, it means working together within a flexible group formed and reformed by students and teachers that participate as partners in the building of knowledge, with an established common goal, and accepting particular responsibilities. For that reason, various forms of presentations are employed in the learning process, where the exchange of knowledge is immediate and direct among all the members and the guests in the studio. As a mode of working, collaborative model creates a sort of community within the classroom where members support each other in their own academic progress. At the same time, the prosperity of the group as a collective depends not as much on the level of skills and knowledge of its individual members as on their right inter-positions, inter-relations, and integrations that makes it capable of conveying grater achievements altogether.

In that manner, the studio tasks are intentionally set to enforce group work that encourages critical thinking and constructive discussions, and consequently, the individual work is always conducted and finally presented as a fragment of the whole – perceiving the studio outcome as a collaborative system of many individual design acts. Another aspect of collaborative learning is cooperation among various parties of complementary participants in the process of learning. In the context of the Growth 2.0 studio it is accomplished through different collaborations with design studios, groups of students, and guest lecturers from other academic environments.

Fig. 5. Collaborative learning and working in Design studio Patterns of Growth: Unnatural Ecologies (2017/2018) and Design studio Patterns of Growth: Narratives (2019/2020)..

The reference of Growth 2.0 as a research laboratory suggests that all members, students and teachers are involved in the design research on different but complementary levels:

1) Since the studio format is defined as a project-based unit, it assumes that the researchers are inside of the research object of design practice, developing knowledge inside of practicing design, as described in Frayling's category of 'research for design'. Understandably, the final products are not artefacts in the material word, but projects for the world that embody the knowledge in architectural practice.

2) Since design is conducted not merely as a final product, but rather as a method, the position of the researcher both inside and outside of the research object, relates the category of 'research through design' that develops knowledge in practice. It is primary teachers' responsibility to address relevant perspectives, while students benefit in obtaining other meanings for their projects. Therefore, ideas, forms and their representation are created to reveal insights about the word that surrounds architecture.

3) Introducing various topics upon studio work allows researchers, mainly teachers, to do their research 'into' design, taking up a position outside of the research object, and gaining knowledge by looking from outside 'into' aspects of design practice that can afterwards be disseminated by publications and texts about the research outside of the design practice (as is the case of this particular paper).

3. DESIGN STUDIO PEDAGOGY REVISED IN COVID-19 REALITY

The particular studio methodology and pedagogy, built and meticulously developed within the Growth 2.0 studio over the years around different modalities of collaborations that prompt immediate and direct exchange of knowledge in the process of learning, has been greatly challenged in the unprecedented Covid-19 situation. In this peculiar time of highly restricted movement and access to many resources in urban life, education has been greatly affected with most of the universities closed, while education processes transfer from the physical classroom into the virtual space of online educational platforms. Forced to migrate to fully digital world due to the pandemic, schools and education experts began to discuss whether online environments are suitable spaces for teaching and learning in general. This question is even more relevant for architectural education that evolves around the notion of space and the place, where people need to establish real connections and interactions in order to communicate and exchange knowledge.

3.1. Studio Theme And Design Task

The priorities brought by Covid-19 and the 'new-normal' mode of distance learning, where students and teachers find themselves physically isolated from one another, each in their own homes, challenges the objectives as well as the way of teaching and learning the design project.

The first challenge that Growth 2.0 faced was deciding on the theme and the most suitable pedagogical steps to guide the design research and project. With the emergence of the pandemic, and especially facing the consequential redefinition of human practices and interactions, many designers, including architectural design studios and workshops, focus on finding new models of urban living, creating new alternatives for the cities. Digital media emanate a vast scope of ideas represented mostly by striking images rendering new post-Covid realities.

Instead, Growth 2.0 focuses on what is already there through reconsidering the dwelling modes, and reconfiguring residential typologies as a form of introspection: deepening the meaning of living space, the habitual environment, and their contemporary urban connotations. Therefore, 2020/2021 studio was themed 'Urban Villa'. Despite many meanings and (mis)usage of the term describing a domain in architectural practice, especially in recent years becoming a catchphrase to communicate forms of living for more commercial

purposes, there is no single definition of what an urban villa is. We choose this topic for two main reasons: first, it is a concept that overcomes the usual residential typologies of architecture as it comprehends the processes of living through spatial and programmatic concerns within the notions of sharing and generosity, and second, the generic understanding of the concept of urban villa makes it suitable to work away from a physical site, which means that can be tested regardless of physical environment. This makes it a Covid-appropriate test bed.

One of the most intriguing urban manifestos of the late 20th century 'The City in the City - Berlin: A Green Urban Archipelago' is the first to introduce a urban villa type in the urban planning concept for the future development of Berlin (Thesis 8).[16] Although the circumstances and the challenges of dwelling in urban environment, described by Ungers, are set in a rather distant context of Berlin almost half a century ago, we can still relate to it today. Positioning the urban villa type between two extreme residential types, the historical villa and the apartment block, which 'offers the advantages of the detached home while avoiding the disadvantages of the apartment block',[17] we find urban villa a substantial alternative for our own urban reality. Faced with further intensified and densified conditions, it becomes critical to rethink former definition regarding the size and programme, according to current urban conditions that we live.

Studio tasks explore the theme of urban villa excluded from any real location site. Instead of contextual readings of an exact site location, the work focus on the autonomy of this typology both as an exclusive formal and spatial composition, and as a programmatic complexity that comprises social and cultural context of today's reality.

3.2. Pedagogical Steps Of The Design Research

In the absence of fieldwork due to the pandemic-related restrictions, hence no site location, the research is predominantly based on references as found in architectural history and theory taken from different ages and different geographies that reveal various aspects of the general understanding of urban villa. In various phases of this studio work, various references are used in various ways for a variety of purposes. As the first step, the exploration in the theme introduces readings that, directly and indirectly, concern the notion of urban villa[18] in order to distillate a repository of key words that refer to the type of urban villa.

These provide the premises of what a new model of urban villa requires, placing greater emphasis on the performative notion of spatial and programmatic, where formal and compositional expression of the built and the unbuilt (architecture and landscape) are directly related to their socio-spatial performance. The second step in the thematic investigations introduces architectural references – a selection of examples, built in different time periods and in different contexts.[19] Through a series of *architectural analyses*, each group of students, working on a single architectural case study, extracts a taxonomy of *typo-morphological patterns*. In the next step, those patterns are recomposed in an *analogous model* that is guided by their own concept of urban villa. The summoned pattern-taxonomy derived from all the reference examples, together with the models by analogy, are once more rethought in the *prototype of urban villa* that has a distinctive formal and performative concept.

These three steps from references, through analyses, to creating new ideas confirm the established pedagogy in the Growth 2.0 design studio, which truly correlates with the key levels of the design project, or the form-generation according to Jan Verwijnen, as already described in this paper. The theoretical/analytical phase is hereby conducted through the readings and reference examples; the conceptual phase is in fact the leap from the ideas found as texts and images towards spatial models, in this case demonstrated through the method of analogy; and later question again the acquisitions of ideas in the production phase, and the development of the graphic representations of various kinds.

The final result of the studio work is presented by nine authentic ideas for urban villa that differ in size and structure, quantity and type of users and programmes, form and performability (Figure 6). The urban villa is considered an autonomous architectural artefact that incorporates cultural and social environment, thus becoming a part of its context. On the other hand, the complexity of the urban villa reflects the notion of urbanity (density, heterogeneity, and multitude), and thus creates an urban condition itself. Such autonomy and independence to some extent within a location does not necessarily mean complete detachment from its surrounding. On the contrary, even though projects are created for a generic location site, each one includes various forms of public or semi-public space as a gesture of generosity (bringing new qualities to the city) and openness (integrating the city and the people).
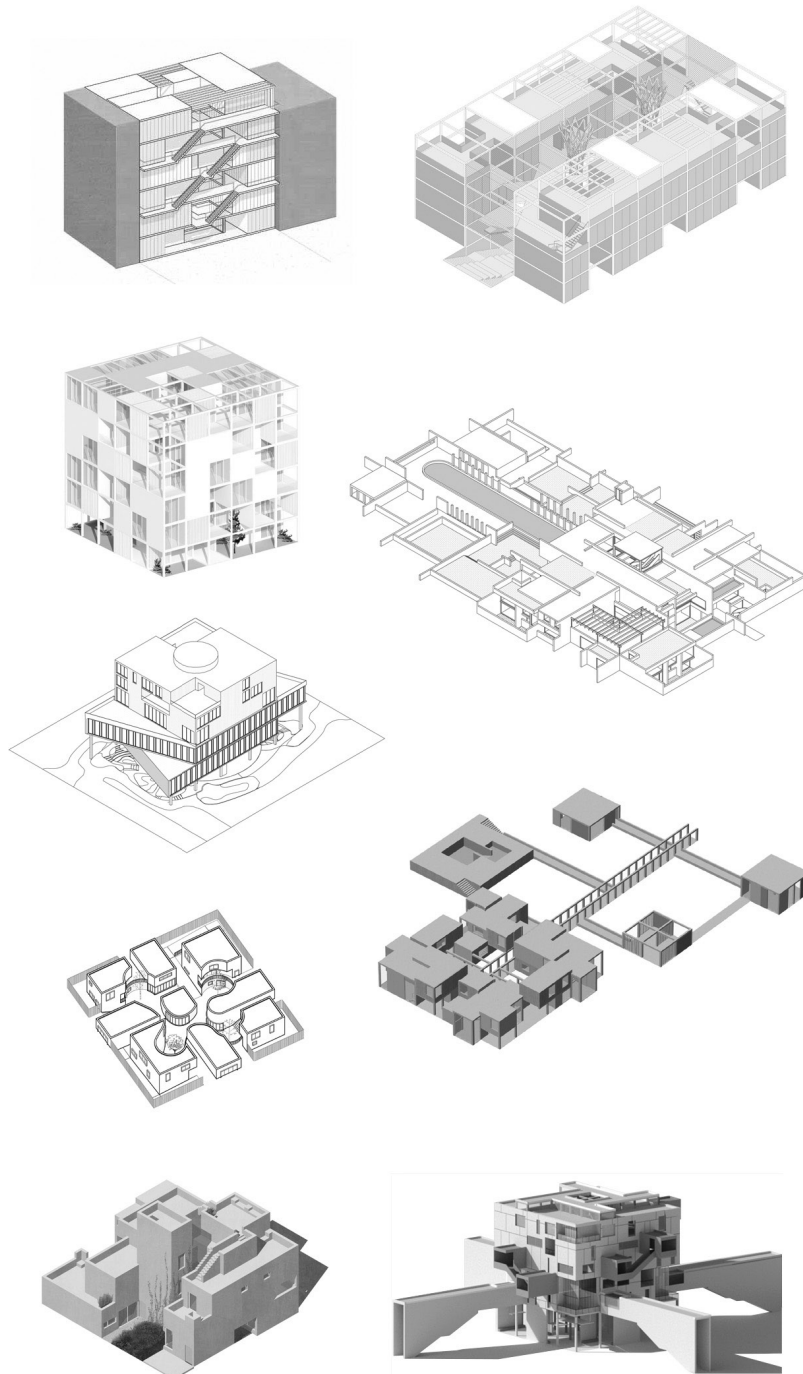
Fig. 6. Students' projects on Urban Villa. The Growth 2.0 design studio: Urban Villa (2020/2021)..

In the effort to perceive the work within the Growth 2.0 studio as a collective act of learning and working, it is of a vital importance to see each of the studio projects as a segment of the whole. This refers not only to the final product – projects for urban villa that share common task and inspiration, but also to the very process of developing those ideas by collaborative work on providing the reference material. Each of the student projects conclude with a set of typo-morhological patterns extracted from their own ideas for urban villa, whereas all nine contributions put together form a much broader and richer repository of typo-morphological patterns (Figure 7). Finding and creating patterns make the use and the value of references ambiguous: they do not only communicate the past, but through their interpretation in the present, they become future archaeology of knowledge.

The final exhibition, which simultaneously presents student projects in an elaborated way as particular ideas and as a fragment of the whole that the studio work itself represents, could also not be held due to pandemic restrictions. Such possibility to reflect on the projects and the design process is left only to printed form as another accustomed form of assembling the knowledge found and generated within the studio work. As all previous printed publications on each of the previous studio sessions, it archives the pedagogy of the studio, where design project is represented by the final product (student projects) and the design research.

As expected, studio's reference to the collaborative mode is highly challenged by the transformation in educational processes due to Covid-19. Nonetheless, the Growth 2.0 studio insists on group work in architectural research and design as a way to make certain tasks more comprehensible through communication and discussion while encouraging critical thinking. For that reason, students are organised in smaller groups of two or three, that could communicate with each other rather easily. Communication between teams (previously done through presentations and workshop-like classes in the classroom, working side by side with lively conversations) are held as online seminars: Each week, a studio day is conducted as a one-day event where each team presents their work via a remote screen sharing, followed by extensive discussions by teachers and other studio participants. That way all students develop their own work simultaneously and are aware of other students' work: they learn from each other, but also inspire and affect each other.
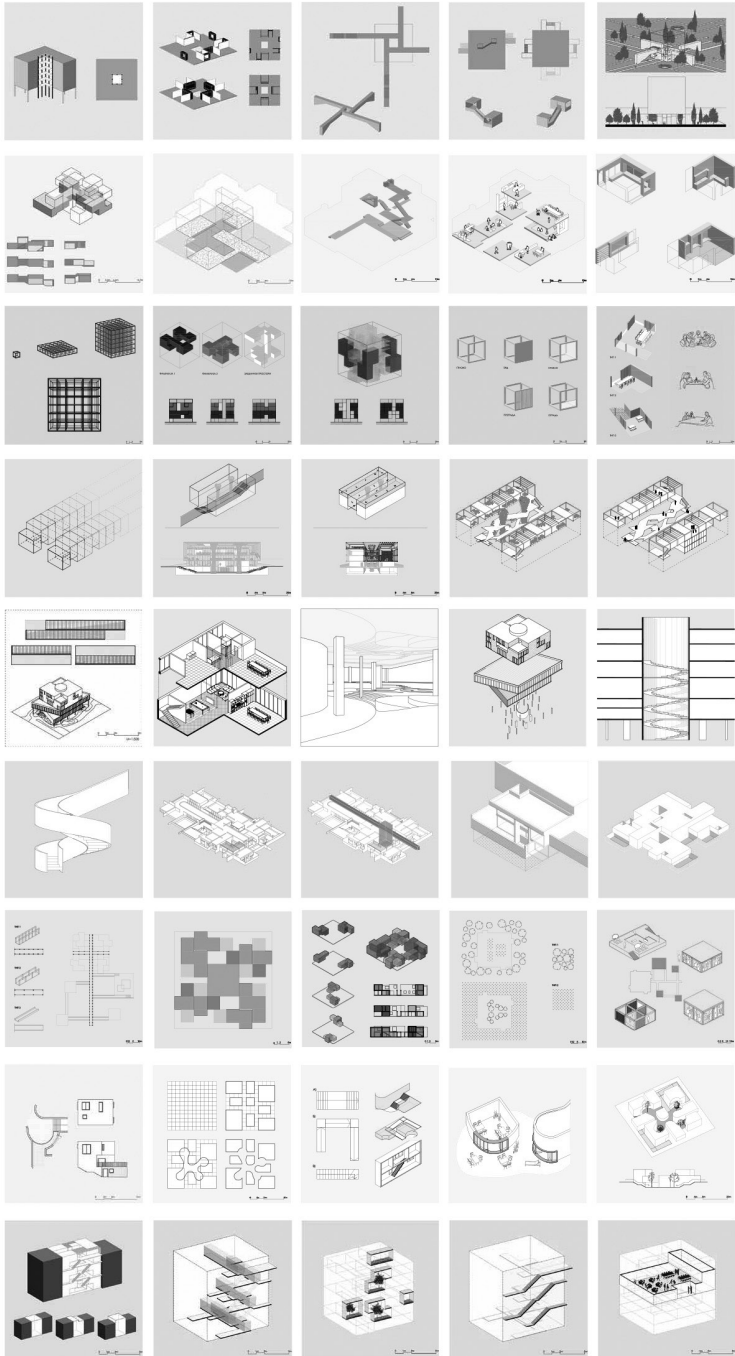
Fig. 7. Repository of typo-morphological patterns of urban villa. Final findings of the Growth 2.0 design studio: Urban Villa (2020/2021)..

The persistence of the collaborative mode in learning and working, despite the constrains forced by the pandemic, guarantees preservation of the studio's position as a research laboratory where students and teachers learn, work, and emanate knowledge and ideas through constant interaction. Therefore, benefits of such intense semester work are multifaceted in terms of the different positions of participants involved and their perspectives. This embraces Christopher Frayling's approaches to design research in various segments of studio work, as introduced previously in this paper: As the core project-based part in the school curriculum, the design studio is inevitably recognised by the end-product communicated by visual representations, and therefore could be described as a 'research for design', providing students a base to deliver novel and meaningful creations. Nevertheless, the complexity of the themes, in this case the notion of urban villa, demands expansion of the domains of interest, going beyond architecture. It puts researchers in position to reflect the topic from other stances (social, economic and ecological aspects) that challenge contemporary urban living, dealing with a variety of theoretical perspectives that require 'research into design' as defined by Frayling. Finally, the methodology of the design studio in developing a design project, as elaborated also in this paper, foremost categorises studio-work as a 'research through design', and the studio-environment as a laboratory that creates particular architectural knowledge to be disseminated in various ways.

In order to become a specific methodology, this studio experience (with all the problems and challenges of online education) is further revised in the next studio session (2021/2022) that is bind to be conducted online, yet on another level. The topic of the current studio session 'Commune - Architecture of the Urban Block' goes beyond the architectural discourse and seeks ways a neighbourhood becomes community. While investigating the many meanings of commune, commons and community, students are encouraged to establish different forms of collaborative working and learning within the studio as a form of community itself. The methodology used for the urban villa theme is currently tested on the scale of the urban block, using the same transformed techniques of distance learning that include intense oral presentations and open discussions, highly systematic algorithm of carefully crafted task-deployments, along with a carefully thought out choice of reference case studies and their specific characteristics in terms of scale, socio-spatial meaning, and performance. This adaptive method once again proves itself fruitful and inspiring for educational purposes, and aims to contribute to general architectural and design knowledge, despite the constraints imposed amid Covid-19 reality.

CONCLUSION

Architecture design studio is the space governed by the academia, where students are being educated and trained for the outside world, the environment, and the culture of architectural office practice. For students, the studio experience is an intensive (self) explorative journey where design skills are developed and passed on, and where students develop their thinking and responsibilities as designers while reflecting upon their skills and the skills of others. Hence the studio's orientation toward the design project as common ground for architects, and designers in general.

This paper intended to point to the importance of research as a key constitute of the design project. Hereto design is identified as research, clearly stating that there is no real design project without research, but a mere production of images, objects, and buildings. The discipline of research has its own wide range of methods that can be creatively used in each case, making its own methodology. The responsibility of the design studio is to instigate an open inquiry, to stimulate creativity, and promote critical thinking through learning-by-doing.

The global Covid-19 crises has profoundly affected every sphere of human life and put in question every aspect of it. In some domains it might be considered a trigger for an urgent and rapid shift. Nevertheless, in architectural education we find it necessary to resist such rhetoric of radical shifts that might cause a rupture in the continuum of knowledge building. Instead, it could be understood as a bifurcation point in architectural knowledge that repositions the priorities. During the inevitable turn of studio work towards on-line-classes, the pedagogy and design methodology of the Growth 2.0 studio have changed to adapt to the particular circumstances of physical distancing and isolation, adjusting design tasks and communication tools as new modes of collaboration in the process of learning and working. This showcases a learning methodology understood and undertaken not as a completely new methodological set and behaviour principles, but rather as a flexible structure based on the adaptive system of pedagogical procedures.

NOTES

1   Clive Dilnot, 'The Science of Uncertainty: The Potential Contribution of Design to Knowledge,' *Proceedings of the Doctoral Education Conference*, Ohio (1998).

2   Jan Verwijnen's unfinished PhD intended to explore the notion of concept in design. Many of his yet not published writings concerning the unique position of architecture and design as knowledge, still very much relevant for architectural discourse and practice today, are published fifteen years after his death in: EHITUSKUNST #60 *Special Issue: Jan Verwijnen*, Estonian Academy of Arts Faculty of Architecture and Urban Planning, Tallinn (2019/2020).

3   Jan Verwijnen, in 'Introduction' by Panu Lehtovuori and Klaske Havik (ed.), EHITUSKUNST #60 *Special Issue: Jan Verwijnen*, Estonian Academy of Arts Faculty of Architecture and Urban Planning, Tallinn (2019/2020), 13-14.

4   Ibid.

5   Ibid.

6   Donald Schön, *The Design Studio. Exploration of its Traditions and Potential*. London: RIBA Publications Limited (1985).

7   Donald Schön, *The Design Studio*, 32.

8   Thomas K. Mc Peak, *Extending the Mission of the Design Studio through Collaborative Engagement* in 'Education for an Open Architecture', Ball State University, College of Architecture and Planning, Conference proceedings (2008). [Online resource: www.irbnet.de/daten/iconda/CIB11017.pdf. Accessed November 2020].

9   Christopher Frayling, *Research in Art and Design*, London: Royal College of Art, Research Papers, Volume 1, Number 1 (1993), 5.

10 Ibid.

11 Ibid.

12 Themes investigated in design studio Growth 2.0 at the Faculty of Architecture Skopje are published in printed editions titled respectively: *Skopje 2014, The Strategy of the Cut-out* (2014/2015), *Microcity* (2015/2016), *Residual Form* (2016/2017), *Unnatural Ecologies* (2017/2018), *Freeingspace* (2018/2019), *Narratives* (2019/2020), *Urban Villa* (2020/2021), *Commune. Architecture of the Urban Block* (2021/2022).

13 One of the most prominent projects that put scale at the fore is the Swiss pavilion at the 2018 Venice Biennale Svizzera 240: House Tour, a project that triggers people's behaviours and perception of space. The project won the Golden Lion award for the best National Pavilion, described by the Biennale organisation as 'a compelling architectural installation that is at once enjoyable while tackling the critical issues of domestic space'. [www.archdaily.com/949884/disrupting-normal-experiences-an-interview-with-the-curators-of-svizzera-240]

14 More on the pedagogy of references as a communication tool in learning architecture in: Marija Mano Velevska, Slobodan Velevski, and Divna Pencic, 'Learning through Collaborations in Architectural Education. Pedagogical and Methodological Aspects in Design Studio Course,' *Proceedings of ON ARCHITECTURE Conference: LEARNING ARCHITECTURE*. Beograd: STRAND (2020), 114-115.

15   More on the pedagogy of exhibiting as a communication tool in learning architecture in: Marija Mano Velevska, Slobodan Velevski and Divna Pencic, 'Learning through Collaborations in Architectural Education. Pedagogical and Methodological Aspects in Design Studio Course,' Proceedings of *ON ARCHITECTURE (same as above) Conference: LEARNING ARCHITECTURE.* Beograd: STRAND (2020), 116-117.

16   *The City in the City - Berlin: A Green Archipelago, a manifesto* (1977) by Oswald Mathias Ungers and Rem Koolhaas with Peter Riemann, Hans Kollhof, and Arthur Ovaska, Edited by Florian Hertweck and Sebastian Marot, U.A.A. Ungers Archive for Architectural Research, Zurich: Lars Muller Publishers (2013).

17   Oswald Mathias Ungers, *The City in the City - Berlin: A Green Urban Archipelago - An urban-planning concept for the future development of Berlin*, edited by F. Hertweck and S. Marot, U.A.A. Ungers. Archive for Architectural Research, Zurich: Lars Muller Publishers (2013), 110.

18   Besides O. M. Ungers as the first and so far the only reliable source dealing the term urban villa, other works were investigated, from a cross-historical review on the type of the villa in: Ackerman, J.S. *The villa. Form and Ideology of Country House*. Princeton University Press, 2nd.Edition, 1993, to its radical interpretations in the concept of commune villa in: Dogma + Realism Working Group. *Communal Villa. Production and Reproduction in Artists' Housing*. Leipzig/Berlin: Spector Books and HKW Haus der Kulturen der Welt, 2015.

19   Architectural references range from the Palladian villa in the country (as in the examples of Villa Emo and Villa Rotonda); through the Modernist model in Muller House, Prague by Adolf Loss; the Postmodern expression as in Studio Passarelli building in via Campania, Rome; the dialectical multiform of O. M. Ungers' projects in Belvederestrasse, Cologne; up to very recent examples from different parts of the world as the villa in Brussels by Office KGDVS, Okurayama Apartments in Yokohama by SANAA, Beaumont building in Lausanne by 2B Architects and building Brunnenstrasse 11 in Berlin by Arno Brandlhuber.

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STUDIJSKI KURSEVI ARHITEKTONSKOG PROJEKTOVANJA TOKOM I VAN KOVIDA–19:
ADAPTIVNI PROCESI U AKADEMSKOJ RAZMENI ZNANJA
Marija Mano Velevska, Slobodan Velevski

Ovaj rad prati rad projektnog biroa „Rast 2.0" na Arhitektonskom fakultetu u Skoplju, koji je tokom godina izgradio sopstvenu metodologiju oko različitih modaliteta saradnje, podstičući neposrednu i direktnu razmenu znanja u procesu učenja. Ograničenja u kretanju i pristupu drugim robama, izazvana pandemijom Kovid-19, potresla su sve sfere društva, uključujući i obrazovanje, jer se njegov rad neminovno prenosi iz fizičke učionice u onlajn oblike komunikacije. Takav veliki pomak sa posebno odražava na obrazovanje arhitekata koje se u osnovi razvija oko samog pojma prostora, prostornih praksi i fizičkih susreta.

Istorija je dokazala da se u vremenima „kriza" (što pandemija svakako jeste), pojavljuju novi načini razmišljanja koji dodatno podstiču nova i inovativna dela i postupke. Ipak, obrazovanje, koje je zamišljeno kao čin nastavljanja deljenjem i razmenom znanja, nije moglo da izdrži brzu promenu bez prekida u procesu. Stoga, ovaj rad pokazuje kako su se pedagogija i metodologija u godini u kojoj se dogodio Kovid-19 menjale samo da bi se prilagodile konkretnim okolnostima fizičke distance i izolacije u okviru projektnog biroa, prilagođavajući projektantske zadatke i komunikacione alate kao nove načine saradnje.

KLJUČNE REČI: METODOLOGIJA PROJEKTNOG BIROA, KOLABORATIVNO UČENJE, PEDAGOŠKI KORACI, DIZAJNERSKO ISTRAŽIVANJE, DIZAJNERSKI PROJEKAT