Conceptual - contextual thinking in architectural education

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ABSTRACT: When designing, architects think in conceptual - contextual links. They strive to put their design work into a specific environment and to shape the bulk concept of the house with their own idea. This mutual inseparable activity is the result of a previous architectural education. The authors of this article deal with the application of conceptual - contextual thinking in the educational process when teaching in the Faculty of Architecture and Design at Slovak University of Technology in Bratislava, Slovakia. This thinking is especially important at a time when mannerism rises to surpass the logical content and spatial cogitation. The consideration, which is often a critical thought process by which students form their own argumentative basis for the original architectural idea, shall form the basis for the author's opinion. In this article, the role of the teacher in the educational process of architectural design is analysed and characterised. The authors highlight the importance of students' authorial thinking in the process of design creation. The aim of conceptual - contextual thinking is to avoid mannerism, fashionability, and to create a sound, well-reasoned and socially respected proposal.

Keywords: Design studio, conceptual thinking, contextual thinking, architectural education

INTRODUCTION

The aim of architectural education is to teach students to think on two basic levels: conceptual and contextual. Both levels of thinking are so dependent in the architectural design that one cannot exist independently from the other. If a student attempted thinking at only one level in his/her studio work, he/she would not come up with socially acceptable architecture. Moreover, Špaček opines that architecture in terms of a building or a city size must be wanted to become permanent [1]. And this is the main reason for teaching the conceptual - contextual design of architecture, which shall serve people and create such conditions that will fulfil the requirements arising from their lifestyle.
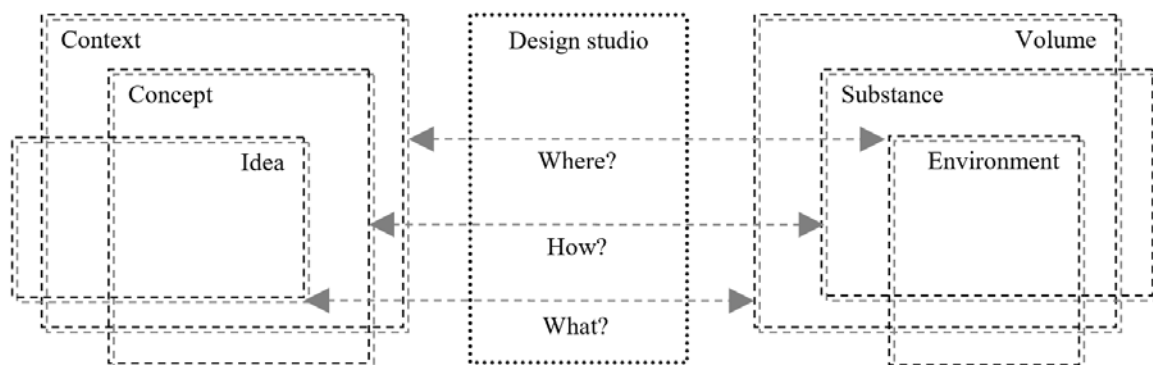

Figure 1: Conceptual - contextual relations (Source: Authors).

The architectural work is a symbiosis of a creative idea as a concept of design and the real context of the environment. Their harmonious arrangement determines the identity of the site that is supported by the *genius loci*. Identity can be understood as the identification of an object according to its characteristic external features - in this case, the educational process is focused on the concept. However, identity can also be understood as a compatibility of several objects that have the same features (e.g. residential complex of buildings) - in this respect, the context that creates and at the same time supports identity, is crucial. The symbiosis of both these notions will then allow to achieve a socially acceptable architecture.

The dual relationship between the concept and the context is perceived by the user of the environment and concurrently by the inhabitants of the house. This also implies that a solitary object increasing the urban density of the original structure presents a much more difficult task to integrate seamlessly it into the space (precisely because of its expressive individualisation) than a complex of buildings. The integration would be easier to achieve with a set of multiple objects because various, harmonically arranged characteristic signs and impulses act on the observer. In relation to a set of buildings, the architect is able to change not only the used urban relations, but also the urban composition and to adapt its functional - spatial needs more comprehensively than in the case of a solitary building.

> *It is important to build on the existing knowledge and link the planning to the practice more to foster the mutual exchange between the theory and practice so that schools are producing graduates with developed skills so that are suitable for the labour market ready to step into planning practice. The mission of schools is to prepare people for successful careers and make them equipped with skills to advance the profession further and make it adjusted to the ever-changing world. The planning education is ought to keep up with the general challenges which directly or indirectly affect the subject of planning* [2].

At present, architectural education is subject to various computer-support programs that reportedly simplify manual work in architectural design. Their advantage is that they can model the environment relatively quickly, but they cannot consider the environment within the conceptual - contextual relationships. However, the current experience indicates that these programs are mainly suitable for practising architects and designers, and the students with practice in the creation of architectural ideas. The paper, pencil and a free hand are still needed for initial ideas, which could best transform the student's ideas into paper. According to Białkiewicz, teaching freehand drawing is one of the basic elements of an architect's education [3].

From a historical point of view, different methodological approaches have been used in regard to creation, varying from traditional manual techniques, through gradual programming in two-dimensional planes to today's innovative parametric design. The present pedagogical process is often based on the teaching methodology from the past or from own pedagogical experience.

> *The trend in schools to create a universal architect using the modernist, postmodernist and computational procedures leads to mediocrity. Each of the methodologies requires mastering of their unique theoretical and practical tools. There is no need to know what it will be like in 20 years. What is required at universities is to deal with the here and now, not trying to satisfy society with post-digital collages. Foundations are required for more pluralistic and democratic education. Otherwise, the profession could face the threat that architecture will start to be defined outside the profession* [4].

CONTEXTUAL THINKING

What is context and what is it related to? What determines it? Where does it have its physical boundaries? These are the basic questions in the architectural design teaching. Thinking in architecture is related to the acknowledgement of mutual urban relations and to the ability to combine these relations and circumstances into judgments or ideas. Thinking is often based on past experience. The decisive aspect in contextual thinking is the nature of the environment composed of physical, social and cultural segments (see Figure 2). The nature of the environment is crucial for generating future functionality.

Relevant examples can be found in historical contexts, like the traditional connection between the agricultural architecture and the agricultural land. Also, thinking subconsciously creates a connection between the alpine environment and the relevant recreational function, for instance: a hotel, mountain hut or a forester's house. The situation is the same in the case of apartment buildings. They are most commonly located in the built-up residential area of the settlement, so that the basic civic amenities needed for every-day life are easily accessible. Historically, the basic functions of family houses were most often related to the breeding of farm animals or domestic cultivation of crops; however, family houses in towns had a different morphology than those in the countryside.

Architecture is a multidisciplinary field. Contextual thinking, therefore naturally focuses also on the social dimension of architecture, i.e. on the existing community. *The value of community, created by residents as well as visitors, is the key factor determining creation and development of a friendly space* [5]. Naturally, a new object attracts new users as residents into the space. Consistent conceptual thinking can prevent possible future tensions among these two sections of the population, newcomers and already settled residents.

The adoption of contextual thinking during architectural studies also affects the real practice. It influences the development or extinction of the existing physical environment. This natural growth of the settlement encourages its development in many areas and character formation for many decades.

> *This allows preserving a certain developmental logic and the continuity of the development of the inner urban structure of the settlement, its readability and values created by previous generations. Context is always important: the continuity of urban structure, the character of traditional architecture and last but not the least, the search of relations and linkages between the original urban core, its central pole of social life and the new poles* [6].
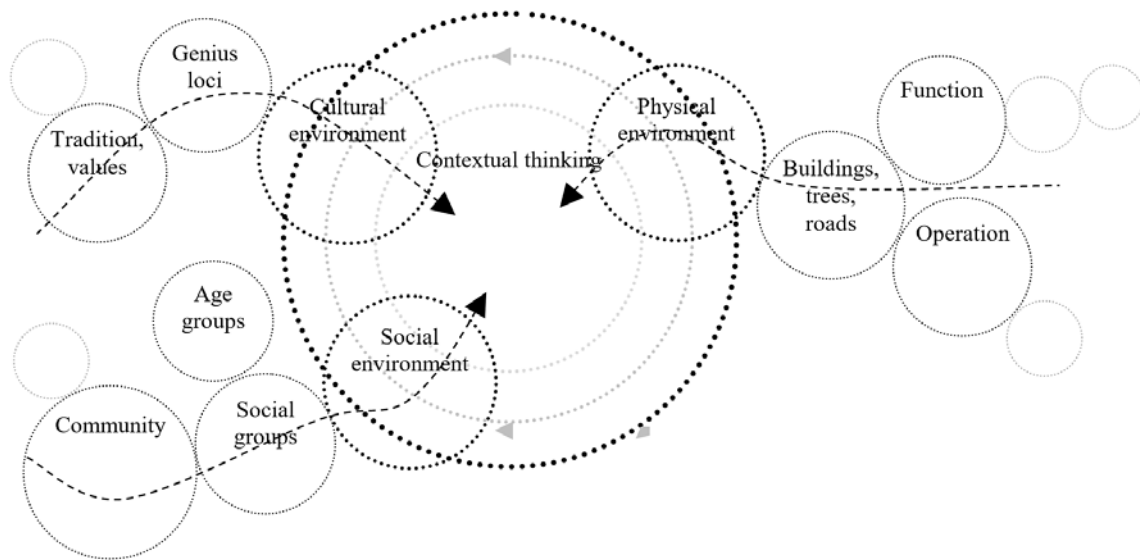
Figure 2: The principle of conceptual thinking in the educational process (Source: Authors).

In architectural education at Slovak University of Technology, contextual thinking will be rolled out in studio work from the first year of study, while in each subsequent academic year the scope and complexity of individual assignments and their contexts will become more complicated (see Figure 3).

Continuous change and the increasing complexity of challenges facing today's society, require universities to adapt and to enhance the quality of teaching and learning [7].
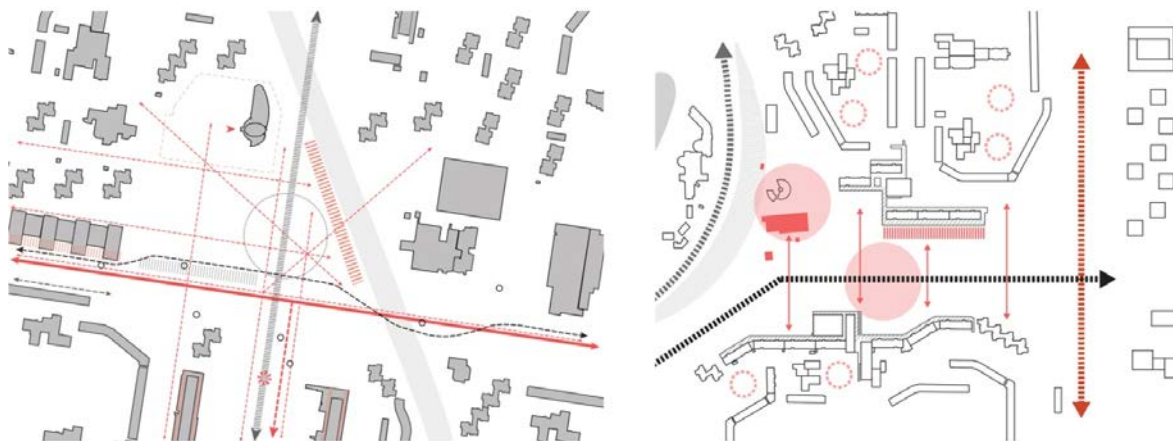

Figure 3: Application of the contextual thinking principles in the educational process (Students: V. Tejová and K. Lincéniová; Tutor: M. Czafík) (Source: Authors).

CONCEPTUAL THINKING

Conceptual thinking is a set of abstract considerations, which are based on the main idea, motive or invention. At this point, the author's *manuscript*, visible in the architectural or urban work, is arising. The main idea in architecture represents the basic backbone that creates the identity of the house in the context of the site. The idea is transformed into a volumetric solution created by substance structuring.

Processing techniques play a significant role in the pedagogical process in creating the initial concept. Working models that embody a concept are complemented by models created by computer technology. This partly changes the view on the pedagogical process itself. The teacher no longer consults with the student just about the physical working model but also the simulating, digital model. These two methodological approaches lead to more effective and design-wise valuable consultations during teaching, and at the same time serve as a tool for a more realistic depiction of the environment and the proposed shape of the object.

Models of design thinking in architecture have traditionally oscillated between drawing and making, visual and material. Advanced design and manufacturing technologies, along with digital modes of representation, did not only bring design thinking models, but also reconciled the dual nature of the design process. Furthermore, rethinking of models for design-led research provides a new framework for design pedagogy that responds to technological shifts and new design thinking [8].

Several teaching approaches to the creation of architectural concepts are widely used in pedagogical practice. The most common way of displaying an idea is to create a volume solution, which is then functionally and typologically completed by students according to the specified assignment. During the semester, students devise new elements in the context of the surrounding buildings and adjust the layout. An architectural expression of the object in the form of a three-dimensional model is thus created (see Figure 4) during regular consultations.
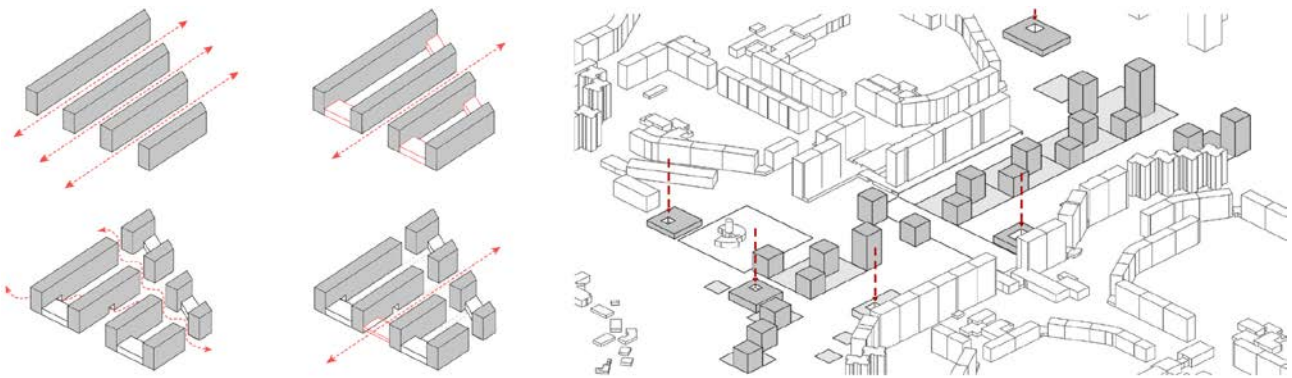

Figure 4: Application of the conceptual thinking principles in the educational process (Students: V. Tejová and K. Lincéniová; Tutor: M. Czafík) (Source: Authors).

The students sometimes look for an idea too forcefully. Their ideas extend to various ambits, which are inspiring for them even in real architectural projects. They derive ideas most often from the field of living and non-living nature. Sometimes a poem, essay or a short text from a prominent author serve as a template for their work. In this case, the role of the teacher is not to disregard the student's thoughts, but rather to motivate him/her to justify the idea, so that it does not become just a snapshot or become unrelated to the local *genius loci*.
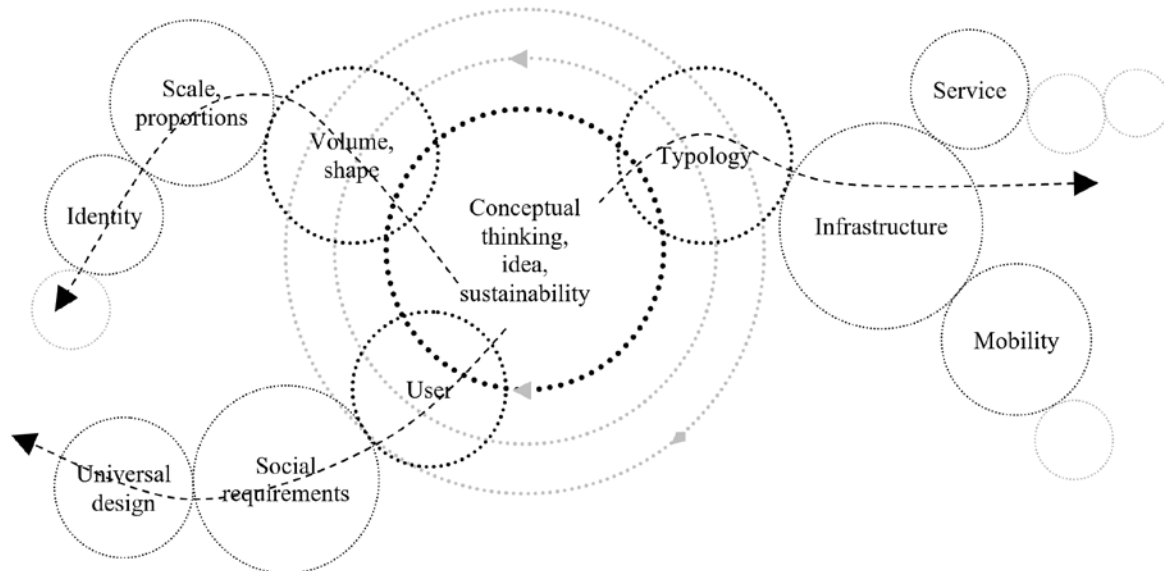

Figure 5: The principle of conceptual thinking in the educational process (Source: Authors).

The presentation of an idea in student studio works and in student competitions is the most important stage of a student's performance. Searching and finding student ideas in a proposed architectural work is a difficult process and its effect on the teacher can be different. The danger of strong ideas is the frequently forced deformation of architectural volume, which causes formality and aesthetic self-centeredness. On the contrary, a weak ideological idea forces students to additionally decorate volume solutions in architectural designs, and brings unwanted mannerism and loss of visual attractiveness.

SYMBIOSIS OF THINKING

The student and the teacher must answer the most important questions during architectural design classes and the creation of one's own idea. How, where and what will influence the context of the environment in the design? And when looking for an answer, the student must also find an argument for the next question. How, where and by what will the proposal affect the context of the environment? In this initial phase of architectural design, the student argues for support of his/her ideological design. The answers often negate each other, causing suspension and re-evaluation of the thoughts. However, the goal is not to present one unambiguous authorial statement, but the creation of several substantiated answers based on surveys and analyses that will convince all participants during the semester - teachers, students and investors [9].

The way how the student approaches the respective issue or assignment of studio work represents the art of pedagogical attitude. The teacher mentors and leads the student, and demonstrates the ability to motivate him/her to design in an open-minded manner. The teacher can come up with questions that often motivate students to look for answers. However, sometimes a deliberate and even provocative opposition is needed to improve students' thinking, and thus to guide them on the right path to success. In any case, the personality of the teacher would usually determine what and to what extent he/she can offer to students, and to what extent he/she encourages them to work positively or to become negative. This will leave positive or negative traces on the students.

Study in the form of studio work is the pillar of teaching artistic disciplines and architecture alike. Having knowledge, studying and passing on experience in this field are essential, since the success of future artists and architects is based on this and, in turn, the effects of their impact on society as a whole. Hence, there are many aspects that affect the teaching of studio work. The personality of the teacher and their professional and teaching experience are irreplaceable. It is absolutely essential that teachers be provided with considerable freedom in the way they work in such creative disciplines, since only then can they freely shape their charges [10].

However, the symbiosis of conceptual - contextual thinking also has another goal. This goal is to adapt the student to the conditions of practice (see Figure 6). Almost every student after the studies' completion will carry out his/her profession and solve various specific tasks, related not only to architecture, but also to land-use planning, urban planning, interior design or management.

The graduate should also be able to design simple and complex buildings; design a simple or complex urban layout; draft planning documents; critically analyse site-specific conditions, including land development; formulate conclusions for design and planning; prognosticate transformation processes and foresee their social consequences; assess the utility of advanced methods and tools in solving simple or complex engineering tasks typical of architecture, urban design and planning, and to select and use proper methods and tools in design [11].

Structures in architecture form an important aspect in design and have an influence on the both components of thinking. This issue is sometimes underestimated in the pedagogical process of architectural design and diminished by strong ideas of students, which in turn, may adversely impact on their practice. Structures are a strong part of architecture. *Architecture cannot possess structure in a false form and building structure cannot absorb architecture in a spiritless concept* [12].
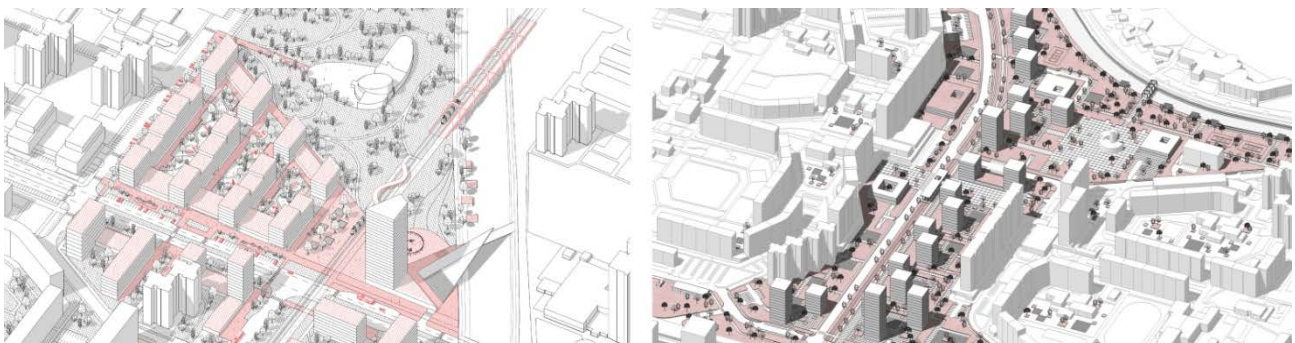

Figure 6: Application of conceptual - contextual thinking in diploma theses (Authors: V. Tejová and K. Lincéniová; Tutor: Michal Czafík) (Source: Authors).

CONCLUSIONS

In this article, the authors have analysed the ways of thinking in the educational process of architectural design and have outlined potential directions for further assessment. There is no single theoretical model of how to teach architectural design. Every student is different and *vice-versa* every teacher follows different principles and ways of communication. In architectural education, however, it is necessary to avoid the production of uniform graduates. The last, but not least is to teach students to design their work in the context of the environment and in the concept of their ideas, which seems necessary in the educational process.

The methodology of teaching the conceptual - contextual thinking in architectural design is not determined by one single procedure, but quite the opposite. The principle would be to introduce new multidisciplinary issues architects face in their practice. This is the only tool for the development of individual thinking. Answering an infinite number of questions broadens students' thinking and gives them stimuli that they can learn or reject. Student must always justify their answers in such a way that their architectural opinions and designs are well respected.

ACKNOWLEDGEMENTS

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BIOGRAPHIES

Michal Czafík graduated from the Faculty of Architecture and Design at Slovak University of Technology in Bratislava, Slovakia in 2011 and concluded his PhD research dissertation in 2014. At present, he is a senior lecturer at the Institute of Architecture of Residential Buildings. He deals mainly with research and the issue of social housing, focusing on homeless people housing. He conducts lectures and teaches theoretical and practical courses. His scientific achievements include scientific publications in journals and conference proceedings, participation in international grant projects, as well as a number of completed architectural projects. In 2015, the Ministry of Transport, Construction and Regional Development in Slovakia appointed him a member of the jury for the assessment of affordable housing in Slovakia.

Branislav Puškár graduated from the Faculty of Architecture and Design at Slovak University of Technology (FAD-STU) in Bratislava, Slovakia, in the Department of Architecture and Urbanism in 2005. He concluded his PhD research dissertation at the FAD-STU in 2008. He was the Vice-Dean for Development in the FAD-STU between 2013 and 2018. He deals mainly with research and the issue of social housing, focusing on intelligent buildings. His present engagement includes publishing scientific papers and participation in international grant projects, as well as a number of architectural projects. He conducts a range of activities in architectural research and presents the outcomes at domestic and foreign scientific meetings and fora. He was habilitated in the Faculty of Architecture at Brno University of Technology, Czech Republic in 2018.

Edita Vráblová graduated from the Faculty of Architecture and Design at Slovak University of Technology (FAD-STU) in Bratislava, Slovakia, and concurrently accomplished a one-year scholarship at Vienna University of Technology in 2002. Since then, she has practised at, and works in, the Institute of the Residential Buildings of the FAD-STU. At present, she is an Associate Professor and devotes herself to the domain of residential buildings and progressive trends in temporary accommodation. She conducts numerous activities in architectural research and presents their outcomes at domestic and foreign scientific conference and fora. She has published many professional studies and reviews in contemporary architecture. Her research is devoted mainly to the design of residential buildings and those generated by her architectural practice.