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Review of doctoral dissertation

written by mgr inż. arch. Joanna Pętkowska (MSc Eng. Arch.)

entitled: „Freehand Drawing in the Architectural and Urban Design Process”

written under the supervision of:

Supervisor: Prof. zw. dr hab. inż. arch. Sławomir Gzell, Warsaw University
of Technology (Politechnika Warszawska)

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The basis for developing the review:

1. Letter from the Vice-Dean for Science at the Faculty of Architecture of Warsaw University of Technology dr hab. eng. arch. Krystyna Solarek, Professor of PW, dated November 6, 2018.
2. Doctoral dissertation
3. Act on academic degrees and an academic title, and degrees and a title in the field of art dated March 14, 2003 (Journal of Laws No 65, item 595), as amended.

1. Description of the dissertation

The subject of the review is the doctoral dissertation by architect Joanna Pętkowska MSc, entitled 'Freehand Drawing in the Architectural and Urban Design Process'. The submitted thesis has 256 pages, including 147 illustrations and 10 tables. At the end of the thesis there is a bibliography which includes 149 unnumbered items.

The thesis begins with INTRODUCTION in which the author described the basic assumptions of the work, i.e. justification of the topic selection, the purpose and scope of the research.

She also presented a comprehensive analysis of literature on the subject of the study with a division into individual themes. This insight into the state of research allowed the author to define the research gap and, as a consequence, to put forward research questions as well as hypotheses which will be verified during the course of the research.

The main thesis of the dissertation is as follows: Freehand drawing has attributes that render it useful in the design process and it is therefore used in this process.

The author complements it with three more detailed theses:

1. Freehand drawing enables a designer to record and understand space and therefore constitutes an element of the phase that precedes a design process.

2. Freehand drawing enables a designer to translate thought into form and therefore constitutes an element of the conceptual phase of a design process.

3. The role of freehand drawing is to communicate within and outside a design team, which is why it is an element of all phases of a design process that require communication.

This preliminary chapter ends with the presentation of methodology, which is used by the author in her work, i.e. a method of analysis and literature review, case study, method of observation, interviews, questionnaires and analysis of graphic materials.

The study can basically be divided into two parts that differ in the nature of the scientific argument, however, they are mutually complementary.

The first theoretical part consists of four chapters (chapters from II to V), in which the author collected and ordered the knowledge about the designing workshop of architects and urban planners, the design process itself and psychological processes that support it. The discussion is supported by numerous quotes and references to bibliographic items.

Chapter II - DESIGN TOOLS - contains definitions, descriptions and characteristics of particular tools which are used in architectural and urban creative activity. Special emphasis is placed on the essence of architectural drawing in its various forms. This chapter ends with the subsection entitled 'FREEHAND DRAWING', in which the method of graphical record, which is a key issue for the purpose of this dissertation, was discussed.

Chapter III - COGNITIVE PROCESSES - is devoted to fundamental psychological processes conditioning contact with a spatial reality, its perception and intellectual and emotional processing of stimuli.

Chapter IV - DESIGN THINKING - is a consistent transition from cognitive processes to the creative application of knowledge and intellectual skills in order to create new qualities and values in designing.

The last and the largest chapter of the theoretical part of the thesis (Chapter V) - FREEHAND DRAWING IN THE ARCHITECTURAL AND URBAN DESIGN PROCESS - analyzes the properties and tasks of freehand drawing in subsequent stages of creative work: from the first designer's contacts with space (record of 'pre-thoughts') up to visual communication within the design team and the social environment (transfer and presentation of thoughts).

The second part of the work - Chapter VI CHARRETTE IN CHICAGO - CASE STUDY is a report from a 9-day project workshop which was carried out with the use of the charrette method in Chicago in 2015. The author, who took part in the workshop, documented the next stages of design works day by day and analyzed the graphical records which appeared in the course of the work. The thesis is ended with a chapter entitled CONCLUSIONS, in which the author carries out the verification of the research hypotheses and summarizes her work.

This brief description of what the work contains allows us to proceed to both general and specific comments and present the evaluation of the work in terms of its content and form.

2. General comments

At the beginning, it is important to emphasize the accuracy of the choice of the dissertation topic. The doctoral thesis written by MSc Eng. Arch. Joanna Pełkowska refers to the current role of drawing (here called 'freehand drawing') in architectural and urban creative activity. At first, the subject may seem passé due to a rapid development of new tools and digital technologies in design.

The PhD student undertook a specific defence of the traditional work technique of a designer, which some may consider a relic and something to be discarded. But the author tries to prove that freehand drawing is still an important tool - not only useful but in some professional situations even irreplaceable.

Titles of various publications, for example, 'Death of drawing' or 'Why Architects Still Draw' prove that the discussion around the issue of drawing is a heated debate. Yet architects are still drawing. Interest in traditional drawing is evidenced by exhibitions, book publications and presentations on professional portals (e.g. ArchDaily). Therefore, architects are aware of the significance of this tool of expression in their professional environment. The thesis by architect Joanna Pełkowska improves to a large extent the knowledge about psychological, social and methodological premises of using a traditional workshop of a designer, first of all freehand drawing.

Architect Joanna Pełkowska decided to prove in her work a significant and still current role of freehand drawing in the design process. This specific defence of the traditional designer tool takes place in a situation of rapid development of new digital design tools. Therefore, as a result, the author is often forced to confront properties, advantages and disadvantages of both traditional and new tools. These fragments could become a separate study devoted only to the comparison of these two worlds.

However, it is traditional drawing that constitutes the subject of this dissertation.

Robin Evans is the author of the statement 'Architects do not build, they draw'. The effect of this action is drawing. This term becomes ambiguous when considering the diversity of graphic forms, art techniques and functions in the profession of a designer. But most often it is associated with a simple drawing tool and a sheet of paper. Creative ideas and reflections 'catch' designers in various life situations.

From numerous publications we are familiar with sketches of great artists made on random materials such as fragments of newspapers, some café napkins, air tickets, phone book covers (e.g. sketches by Aldo Rossi). However, the drawing activity – in the light of contemporary changes of the designer's workshop from analogue to digital – has recently been replaced by the creation of a digital model (e.g. parametric modelling). This process of changing the workshop during the last fifty years was presented in the diagram on page 6 (Fig. 1 Changes in the use of design tools since the 1950s until today). The concise graphic form shows on the one hand a logical sequence of changes in the design workshop, while on the other hand it illustrates the author's thesis about the current and future position of the traditional drawing in the face of technological changes, above all at the stage of initiating the design process.

The drawing in the history of our profession served primarily to illustrate design ideas. And nothing in this respect will be changed until the image of a non-existent thing is preceded by the thing itself (realized). If 'beautiful lies' (as some architects call design drawings) are supposed to be as credible as possible for the eyes, then indeed all technologies of creating images are desirable up to the hyper-realistic and virtual delusions. However, the architect's drawing has always been a form of the intellectual and artistic expression as well and its function goes beyond simple illustration. The dissertation by MSc Eng. Arch. Joanna Pełkowska skilfully shows all of the most important advantages and uses of this traditional tool.

Important messages of the work include the argumentation for artistic education of future architects and urban planners. It is surprising that in the modern world, which is so much dominated by visual culture, students of Faculties of Architecture have problems with seeing space. The reason for this observation lies in the excess of visual information which is to a large extent provided - as the author points out - in a two-dimensional form. The belief in the possibilities of new tools and technologies obscures understanding the role of drawing in the education and professional practice of architects and urban planners.

Therefore, teaching future architects not only to see but also to look at things becomes more meaningful. The way to understand space is through freehand drawing, which is a laborious and often painful method.

This is the reason why reminding and restoring the meaning of drawing in the education process at the Faculties of Architecture is the need of the hour. Timeliness of this message is connected with the fact of limiting the number of hours for art education in the curricula.

3. Detailed comments

The title of the work, i.e. *Freehand Drawing in the Architectural and Urban Design Process* raises a reviewer's doubts. It refers to the term 'freehand drawing'.

The PhD student in her work devotes a lot of information as regards the general terminology of drawing and architectural drawing and explains her decision to use the term 'freehand drawing' (including on page 56 and in footnote 39, where she discusses linguistic issues).

However, in the professional environment of designers, freehand drawing is associated more with a simple sketch made with a pencil than with an image made with the use of various artistic tools and techniques, e.g. with the help of templates, using an airbrush, in a collage technique or screen printing.

Moreover, the subject matter discussed in the work is wider than just freehand drawing understood traditionally because the author confronts the world of analogue techniques with the world of digital products.

Therefore, in the opinion of the reviewer, a better expression of the idea of the dissertation in the title would be achieved in using the term 'architectural drawing' or more simply – 'drawing' (implicitly 'analogue drawing', 'traditional drawing'). This definition would be sufficient to distinguish a traditional graphic form from digital and virtual products, which are more entitled to the term 'image' than 'drawing'. Moreover, the title of the entire thesis would be different from the title of chapter V (a mistake or

a conscious decision?). The doubt expressed above is not an objection but rather a voice in the discussion.

On the other hand, there is no doubt about a high level of the content and theoretical discussions. Skilful and logical combination of three consecutively presented issues ranging from psychological foundations of perception and thinking, through the discussion of creative processes up to the analysis of their functioning in various professional situations should be emphasised.

For a person who is not a specialist it is difficult to take part in the discussion on the content regarding cognitive processes and the psychology of creative activity. These issues constitute the knowledge that should be accepted since it gives a right basis for researching the specificity of architectural creative activity.

However, we can briefly refer to chapter V, which according to the reviewer is the most important in this part of the discussion. It is very extensive and contains many thematically diverse topics. Hence, the issues discussed could have been arranged in a different order, e.g. a more clearly separated sequence depicting the picture-imagination relation starting from recording the first thoughts up to the final drawings. Two important aspects discussed in this chapter deserve a better and independent emphasis in this chapter - education through drawing (subsection V.1.) as well as a social dimension of architectural drawing (subsections V.3 and V.5, separated by a subsection of autonomous architectural drawing). The above remarks do not diminish the fact that the content in the whole chapter is a broad and insightful view of the phenomenon of architectural drawing.

In this chapter, some descriptions, for example, of drawing family workshops, the issues of cropping images or experiments connected with the ambiguity of images seem to be too long, which is a slight drawback. Nevertheless, the content presented is a valuable development of the main ideas of the work.

The extensive theoretical part of the thesis acquires a deeper framework in the design practice of architects and urban planners thanks to the application of this knowledge to conduct research on the role of drawing during the charrette workshop in Chicago (participant observation). Apart from the methodology of the workshop, which is not the subject of this doctoral dissertation, one should emphasize the originality of looking at the design process through the prism of graphic records. The idea of documenting and analyzing forms of drawings accompanying the work of designers, especially in the methodologically extensive form of the charrette workshop, allowed the author to find arguments confirming preliminary research hypotheses.

Drawings that are created during the design work often end up in a trash can or remain forgotten in archives. Most often, only the final record of the solution has value from the point of view of the objectives of the design task. And yet this large number of drawings which are created at various stages of the design process is a testimony to laborious work, i.e. the intellectual effort and the time required.

What is also worth noting is the inclusion of drawings of non-professional participants (stakeholders) and even children in the analysis. The PhD student notes that „The drawing was a universal ‘language’ of the message, independent of nationality, cultural background, level of education, social status or age.” This is

another argument for the need to develop drawing skills by designers who are responsible for coordinating information exchange in complex professional situations.

A valuable complement to the conducted research are interviews and surveys carried out during the workshop. They prove the importance of drawing in design work expressed by professionals and practitioners.

An important element of the study in question is the information base for conducting research, which is illustrated by the bibliography. The analysis of the list of literature allows a reader on the one hand to orientate in the direction of research, while on the other hand it shows the degree of the PhD student's knowledge in the literature of the subject.

The discussion of the literature in the introduction of the thesis divided into six thematic parts - from psychology through design methodology to drawing education - proves a good substantive preparation for conducting scientific research.

As mentioned, the bibliography has 149 items. The major part of this number are foreign language positions mainly in English (50%) and in German. Polish literature comprises the most important scientific publications in the field of architectural drawing with an emphasis on the Warsaw scientific environment.

The analysis of the publication dates of sources proves that the author has used a lot of current sources. Two thirds of the bibliographic entries are works published in the last 20 years, i.e. during a period in which the problem of new digital tools grew significantly and there were numerous discussions on new design methods.

It is worth noticing that a relatively small number of sources from the Internet (9 items) is cited. However, with the continued distrust of information posted on the web, it should be noted that on the Internet forums, on the websites of design studios, scientific and exhibition institutions or on-line journals there are current polemics and this is where we can often find inspirational statements.

4. Evaluation of the thesis in terms of its content and form

Referring to the substantive content of the thesis, the relevance and timeliness of the topic selection should be emphasized once again. The substantive structure of the work is well-ordered. The theoretical chapters preceding the practical part are clearly defined - description and analysis of the charrette workshop in Chicago.

The careful connection of the individual parts of the discussion into a coherent whole deserves recognition. Numerous references in the text to the relevant parts of the work in other chapters and subchapters enable the reader to see the logical construction of the whole work better.

Research methods are properly used in the course of the research. A particular emphasis should be placed on the effective use of the participant observation method in the study. The effect of this method is an in-depth description of the spectrum of graphic records that were created during the workshop, both on the formal side and the role in the design process.

The conclusions were formulated logically and result from the proper course of research and from the consistently conducted scientific argument.

The formal evaluation of the work is also very good. The thesis is written in simple language and thoughts are formulated clearly. The proper structure of chapters and subchapters allows the reader to easily go through the extensive text.

Illustrations, diagrams and tables complete the text well and are legibly described. The number of illustrations - considering the subject of the dissertation - is not exaggerated and corresponds to the need for a visual complement to the text. What can only raise doubts is the number and selection of illustrations in the chapter devoted to autonomous architectural drawings (Chapter V.4.). In this case, the author claimed, however, that this is a subjective choice and that the reproductions are irrelevant to the course of the discussion.

5. Summary and final conclusion

The dissertation submitted for review by MSc Eng. Arch. Joanna Pętkowska is an original scientific study and as such it brings new values to science. The research was carried out correctly from the point of view of scientific research methodology.

The research hypotheses put forward at the beginning in the introduction have been proven in the course of the research, hence the research goal has been successfully achieved.

A wide body of information contained in the theoretical part and conclusions resulting from the description and analysis of the charrette workshop in Chicago allow us to see the great cognitive and educational value of work. This statement leads to the conclusion about the desirability of publishing the thesis in the form of a book. It would be a useful item for both students and active designers, thus contributing to the enrichment of knowledge and professional culture.

Summing up, the doctoral dissertation written by MSc Eng. Arch. Joanna Pętkowska entitled "Freehand Drawing in the Architectural and Urban Design Process" completed under the supervision of Professor Sławomir Gzella and Professor Angela Million is an interesting, valuable, well-written and composed work. The content of the dissertation indicates that the author has extensive theoretical knowledge and possesses the ability to conduct scientific research.

The thesis meets the requirements set for this type of works by the Act on Academic Degrees and the Scientific Title as well as degrees and title in the field of art dated March 14, 2003 (Journal of Laws No 65, item 595) as amended. Therefore, I am applying to the Council of the Faculty of Architecture of the Warsaw University of Technology for admitting MSc Eng. arch. Joanna Pętkowska to the next stages of her PhD dissertation procedure.

Leopold Malinowski

