Visual communication in imaging student projects

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ABSTRACT: In this article, the author has addressed the issues related to the visualisation of projects in architectural education. In the Faculty of Architecture at Cracow University of Technology (FA-CUT), Kraków, Poland, as part of design tasks, display boards are required for illustrating the architecture designs. Their aesthetic quality often falls short of the required standard for the graphic design of technical documentation, thus failing to illustrate properly the completed design. Improving the teaching of students to enable creation of such presentations is crucial as they are the basis for communication. In the real world, technical drawings of projections, cross-sections and elevations are not sufficient for investors or fully understandable by project recipients, and hence require additional graphic presentations produced by the architect. The educational process is discussed from the perspective and challenges associated with the imaging of students' own projects. These should reflect the intentions of the designers, the teaching and social expectations.

INTRODUCTION

In times of rapid technological changes and professional specialisations, it is the responsibility of schools and universities to offer a curriculum that both inspires and broadens horizons. Modifications to teaching programmes can play an important role if, by reflecting ongoing developments, they provide information on the dominant trends and fashions in the professional world. They also aid the identification of the variety and scale of possible choices, helping students to make their own, informed decisions.

In a constantly evolving world, there is a need to ensure the quality of the teaching and also the preparation of the teachers. To ensure creative and up-to-date teaching programmes, teachers must draw on materials promoting avant-garde activities and achievements in education. An important element, therefore, is the teacher's attitude as an integral part of the educational process.

METHODS

Since the topic is extensive and subject to dynamic changes, a descriptive and normative research method has been adopted. Presented in this article are the educational principles already in use, with student outcomes, while also suggested are new principles and more effective programmes. The aim of this research is a critical assessment of activities based on specific didactic effects, including both quantitative and qualitative aspects. The author has focused on a description of particular topics in the context of students undertaking the tasks and of educators implementing a specific programme. It is assumed here that learning about these tasks gives meaning to the topic.

PROGRAMME IMPLEMENTATION

An example of student activities is creating representations of existing objects that are icons of contemporary architecture. They enable the acquisition of practical skills, but the breakdown into digital and manual techniques should be analysed. The former generally is used to create technical models of future architecture. By contrast, manual techniques require an awareness of their aesthetic effects and their impact on the recipient. Their use requires competencies obtained in education and artistic methods.

LEVEL ONE

The first two semesters of the first year are the propaedeutic by stimulating creativity through imaging the design, gaining competencies in traditional techniques, and the ability to convey messages between the designer and recipient. In the Faculty of Architecture at Cracow University of Technology (FA-CUT), Kraków, Poland, students are required

to create hand-drawn graphical records of their own design ideas using generally traditional pencil drawings. Design classes take place in different departments and design tasks also differ. Nevertheless, the scope of the presentation is the same: first, students draw sketches of an object, interior or garden, and then draw a perspective view of the object from a selected place [1] (see Figure 1 and Figure 2).

a)   b)

Figure 1: a) and b) T. Burek and M. Malecka - drawing workshop (FA-CUT).

LEVEL TWO

Initial exercises involve creating a representation of an existing architectural object, such as Casa Bianchi by Mario Botta, the Barcelona pavilion or a design by Mies van der Rohe. During the next two semesters, students create sketches and perspectives for their own course projects.

The general task is for a student to create a visual message, which captures a design while taking into account the surrounding space (see Figure 2). The skill of translating intentions into images that shape the structure in relation to given forms are essential in the education of future architects. The aesthetic value of the message is often crucial for the investor. The choice of media is limited to traditional techniques, apart from painting. The basic technique is drawing supplemented with a limited colour palette.
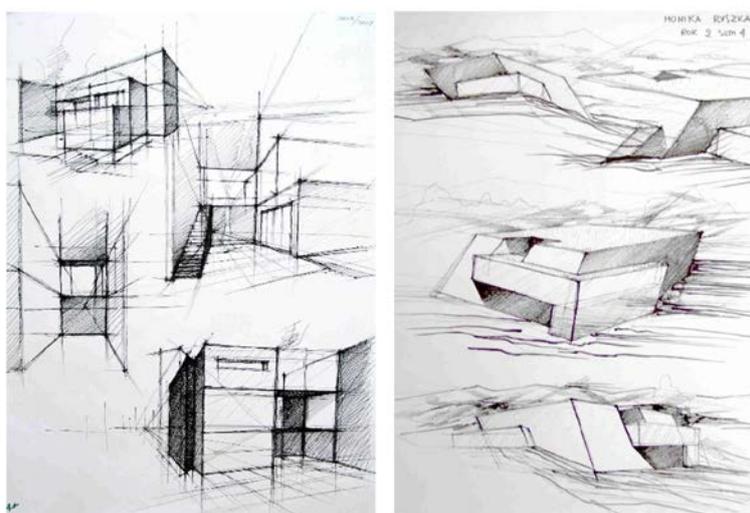
a)   b)

Figure 2: a) and b) M. Zub and M. Ryszka (FA-CUT).

LEVEL THREE

This stage of education concerns the role and tasks related to painting as an element of design skills and the use of colours in architecture.

One task is the colouring of architectural models carried out on selected examples of architectural models, not related either to the achievements of recognised architects or students' own designs. It seems, therefore, that such objects disconnected from reality, despite constituting good exercise material, did not arouse students' interest, because they had nothing in common with the implemented didactic process.

The years-long process of educating architects at the FA-CUT includes the propaedeutic of the basics of colour theory and the use of colours in architecture, as well as weekly painting practice. The objective is to create the basis for using colour and painting techniques, as well as stimulating aesthetic sensitivity and a feeling for the application of colours (see Figure 3).

a)   b)
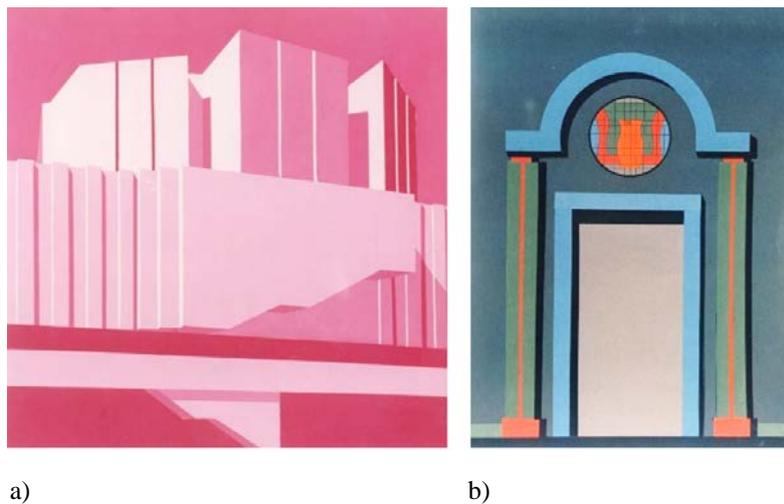
Figure 3: a) and b) M. Janus and P. Marcinkowski (FA-CUT).

LEVEL FOUR: DIPLOMA

The final stage involves illustrating an architectural design as part of the diploma, finalising the first degree programme. Students are expected to demonstrate knowledge of architecture and urban planning with respect to engineering tasks. The scope of the project requires basic design skills and principles, solutions, constructions and building materials. The graphic presentation is analogous to the professional display of architectural and urban concepts. It can be supplemented with a 50 cm x 70 cm freehand perspective drawing.

Therefore, it is important for the students to acquire the competencies for creating visualisations and to critically evaluate their own work. They create visual messages using traditional or digital imaging techniques. At present, the majority of diplomas make inadequate use of available technologies.

The essential issue in creating architectural representations is the way of delivering the message. The message can be determined by the historical context of a building, aspects of conservation, climatic conditions, the mood evoked by functional specificity or the selected media techniques (see Figure 4).

Figure 4: Diploma examination (FA-CUT).

A necessary aspect is the awareness of the diversity of the architectural message. This depends on the recipients and the need to choose the appropriate type of representation.

Completing the second-degree architectural studies at the FA-CUT is by diploma qualifying for the title of Master of Science in Architecture. The diploma work consists of a descriptive part and a design, i.e. drawings, ensuring a clear

presentation of the diploma project. It is also obligatory to present the project idea as a 50 cm x 70 cm freehand perspective drawing.

In the case of the diploma, the student is assumed to have obtained appropriate competencies in the course of studies to enable their preparation of the final project. The student's own ingenuity and the information obtained in the course should be sufficient for the development of the graphic part, including the freehand drawing.

FORECASTS

In recent decades, there has been a significant expansion of knowledge in many fields of science, which has resulted in a re-evaluation of various spheres of life, including professional. For example, the old ways of working have been replaced by new, more effective ones, thanks to the use of new devices and machines resulting from technological advancements and innovative concepts. Computerisation is one of the most important aspects. Its universality and accessibility, especially in communications, has contributed to globalisation and changes to existing processes.

New manufacturing methods and new tools also have significantly changed the process of design and creation in architecture. Buildings correspond to the time of their erection in terms of construction, materials, functionality and aesthetics. In design, innovative ideas are implemented based on new tools, such as computers, the software for which is becoming more and more effective. Architects apply programs that generate drawings and models according to programmed input parameters, and input modifications automatically update the design [2]. Many research papers have appeared on the use of computers in architecture, because they are ubiquitous but, in education, their wider use seems remote. One of the leading researchers, Professor Jan Słyk, has stated that:

> For the time being, the architecture of the information society is (...) mostly traditional architecture which is constructed according to proven models and which treats digital technology as one of the branches or extensions. Writing about information architecture, I am convinced that among current trends, there is a tendency based on the formalisation of the creative process, close to the algorithmic method [3].

It can be assumed that in the future architects will draw more support from digital techniques. The fascination with their possibilities is enormous and the only barriers to overcome are the restrictions from organisations and the intellectual predispositions of learners and teachers.

Questions are asked about the creative role of the architect in generative design and the possibility of reducing the architect to the role of a programmer entering data into a computer program. Jan Słyk does not see any danger in this respect, because:

> ...the algorithmic approach to architectural design is a legitimate way of reasoning. What's more, it can bring about unique results shaping the future of architecture [4].

Artistic quality is a creation for human senses. It is not a machine that creates, but it is the artist who, through numbers and signs, programs artistic expression to determine the right and desired forms. The creator has gained help in the form of a computer, which strengthens the effectiveness of creation and artistic expression, but does not replace the intellectual work of the creator.

In parallel with research, successful faculties of architecture introduce changes in the education of architects. These are required by legislation or the application of new technologies to the teaching of modern architectural engineers. The changes to education also reflect an adaptation to new trends. However, the implementation of the new technologies and the concomitant radical transformations in architectural practice will not take place immediately. It is unlikely that traditional methods will be replaced during the lifetime of this, or the next, generation.

The learning outcomes at the FA-CUT, specified to start in the present academic year (2019-2020), will modify aspects of message creation and ways of conveying ideas in architectural and urban planning designs. This will involve the role and form of modern communication through applying graphics, drawing and painting, as well as digital technologies.

THE IMAGE AS A CARRIER OF IDEAS

The quality of the message contained in a project is crucial, determining the perception of the work. However, the representation can be directed to evoke certain desired emotions in the recipient [5]. The intention of the creator in the message representation and its interpretation by the recipient should be the same. It is incorrect for the representation of the message and its interpretation to be inconsistent with the essence and values of the project.

The student's project in applying both traditional and digital techniques should be factually correct and present the content effectively. There remains the artistic aspect and the way the project is presented. In either case, good results can be attained. The search for forms of expression, as well as representing architectural intentions depends, to a great extent, on the individual predispositions of the student. Therefore, students should be granted freedom to choose the

media, provided they are aware of the principles of operating the computer and its capabilities, and also have the basic knowledge of traditional techniques, such as by pencil or other permanent techniques [6]. The chance remains high of improving artistic skills as part of the architectural student's education.

CONCLUSIONS

Digitisation has impacted the training of architectural engineers. It is difficult to imagine the work of an architect deprived of digital technology. The latest software makes it possible to work on models, their immediate verification and modification, with quick imaging of selected areas. The FA-CUT curriculum gives students the opportunity to obtain such competencies in several courses.

The course, Computer Techniques, teaches the basics of information technology and creating the technical and visual documentation of architectural projects. The course, BIM Computer Techniques, develops parametric design skills and the operation of building information modelling (BIM) and visualisation programs in architectural and urban design. In toto, they form the basis for digitising the creative process. This is one of the ways to create architecture, but not the only way.

The illustration of designs is an enduring important issue. The student, regardless of the tools used, must demonstrate the ability to capture the design problem and present the author's intentions as a visual message. The essence, for the student, is to learn visual communication by using properly selected tools. The value of a project is evidenced primarily by the ideas contained in it, while its artistic quality results from the designer's knowledge of creating images by means of traditional techniques.

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