

# Classroom-based and distance teaching of freehand drawing: a comparative analysis

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**ABSTRACT:** In this article, the author presents a comparative analysis of the classroom-based and distance teaching of the subject *Graphic Art Techniques. Freehand Drawing* in semesters 3 and 4 in the Faculty of Architecture at Cracow University of Technology (FA-CUT), Kraków, Poland. The main assumptions of the drawing subject for architectural engineers are outlined and the model of teaching developed over the years is discussed. The model allows reviewing the applied standards and drawing conclusions while evaluating tasks. The results of the teaching in both modes in terms of the students' engagement, manner and quality of performance of the tasks are demonstrated. Finally, a conclusion is made about the possibilities of achieving quality standards of distance learning. Knowledge transfer with the use of increasingly more advanced digital techniques is possible in relation to most art topics and issues, but certainly not all.

## INTRODUCTION

The study is based on an analysis of the programme of education of architectural engineers in the use of freehand drawing for architectural imaging. In March 2020, distance learning was introduced forcing rapid adaptation of programmes and methods of work to new technical requirements, and opening up the possibility of transferring knowledge through a different means. The e-learning platform of Cracow University of Technology (CUT), Kraków, Poland, and the Microsoft Teams communication platform were used to teach classes. The initial stage, due to the earlier preparation of the University's e-learning system, ran relatively smoothly, as did the adaptation of teachers and students to the new teaching standards. However, after three semesters, changes in the quality of learning outcomes have become clearly visible.

Presented in this article is a comparative analysis of the students' evaluation, engagement and perception in relation to particular thematic groups of the entire subject titled *Graphic Art Techniques. Freehand Drawing*, offered in semesters 3 and 4. The analysis prompts reflection on the quality of distance learning and the opportunities it offers. However, it also shows the need for verification of the existing programmes and for increased diversification of the topics and methods in the classroom-based and distance modes.

## WORKING METHODS AND MOTIVATION

The curriculum for educating architectural engineers in freehand drawing for architectural imaging has been developed over many years of teaching this subject [1]. After the completion of two semesters according to the uniform programme's assumptions, the learning outcomes of students in subsequent years were similar to the earlier ones. Nevertheless, there were discernible differences in the final effects summarising the yearly teaching. They resulted from both the quality of preparation for the entrance examination and the artistic predispositions of particular groups of students, as well as their involvement in the didactic process (annually 230 students).

Teaching the last three semesters in 2020 in the distance mode made it necessary to adapt the subject programmes and working methods to new technical requirements and to fully realise the possibility of transferring knowledge through a different means. After the implementation of the programmes, a comparative analysis of the achieved learning outcomes was made revealing significant differences. They resulted, first of all, from the diversified involvement of students and their individual psychological predispositions, which became much more visible during distance learning. Environmental conditions are also important in knowledge transfer, and they also impacted the learning.

So far, many educators have already published reports on distance learning introduced during the Covid-19 pandemic. However, these reports can be treated with some reservations as they concern a short period of time (one semester) and the conclusions are often hasty because they are not justified by sufficient experience of distance learning, and hence

the ability to identify all related problems. In this context, the article *Enhancement of student learning and interaction in engineering programmes using an audience response system* by Farhat et al, deserves special attention [2].

Their article focuses on active forms of e-learning introduced due to the Covid-19 pandemic in engineering courses of various programmes and levels at the Australian College of Kuwait (ACK). The authors formulate the thesis that interactive teaching plays a key role. It has been found that an audience response system, incorporated into teaching and compounded with continuous formative feedback and anonymous student responses, increased the students' attention and engagement in the given tasks. Therefore, it is one more example that making students the centre of the teaching process rather than focusing on the implementation of additional supporting modal technologies is essential to educational success. These authors also observed that students who are shy or lack confidence usually make great efforts to remain unnoticed. Subsequently, a team of educators was formed to provide a safe and appreciative environment, in order to encourage students with different learning preferences to engage on a more equitable basis.

In this context, it is worth considering whether, in the absence of the possibility of interactive activities, due to the groups' size, the assessment of learning outcomes should concern not only purely substantive aspects, but be extended to include also psychological aspects. It seems that the classroom-based mode makes possible individual conversations even in groups of over 230 students, assessed by a team of five teachers. Distance learning in this case makes such contacts sporadic despite the apparently even better conditions for interactive activities. It is impossible to make an individual conversation or ask a question as in the case of studio work. Working with MS Teams very often results in the withdrawal of many people, despite their frequent logging in during classes.

#### AN OUTLINE OF THE CURRICULUM CHARACTERISTICS IN THE CUT

The programme of the subject Graphic Art Techniques. Freehand Drawing in semesters 3 and 4, in general terms, covers four aspects of teaching drawing:

1. seemingly imitative because it concerns drawing individually interpreted representations of space;
2. requiring creative thinking based on the set topic;
3. creating representations of iconic contemporary projects;
4. illustrating students' own projects.

The developed model allows reviewing the applied standards and formulating conclusions while evaluating tasks.

When e-learning was introduced due to the Covid-19 pandemic, some topics occurred twice. Therefore, it is possible to comment on the achieved learning outcomes. It should be mentioned that the way of completing the assignments was different than in the classroom-based mode. The programme assumptions provided for outdoor classes, but since they proved impossible, the task completion took longer and involved using the Internet.

It is worth adding that the subject in question is not a major that determines the student's status. Nevertheless, stimulating and developing the imagination in relation to the shaping of space, as well as the need to use freehand drawing in order to enable communication between professionals, and as a form of the author's expression, make the subject popular and highly appreciated [3].

#### Seemingly Imitative Drawing

Drawing urban interiors or their fragments in the open air requires insightful observation of space and noticing all the phenomena that take place there. An in-depth analysis of harmonious systems or random disturbances in the observed area allows an individual selection of architectural and landscape elements or details in order to create an individual interpretation of the image of the space.

This type of exercises requires students' involvement and willingness to complete the task. An additional incentive is the fact that selected works are presented at permanent and temporary exhibitions organised at the CUT.

The statistics included in Table 1 indicate that the distance mode yielded better results.

Table 1: Interpretation of the image of the space. Comparison between the results achieved in classroom-based and distance education. Topic: Sketches of the *Młynówka Królewska* park.

Academic year	Teaching mode	No. of students	No. of works graded <i>very good</i>	Percent of works graded <i>very good</i>
2017/2018	Classroom	239	23	9.6 %
2020/2021	Distance	231	31	13.7 %

The possibility of using Internet resources and extending the working time significantly influenced the quality of the submitted works. Nevertheless, it is worth noting that the first weeks of remote work on this type of drawing were characterised by increased neatness and quality of the sketches compared to the third semester of working in this mode.

The statistics included in Table 2 refer to the results obtained at the inception and end of the distance mode, and examples from that period are demonstrated in Figure 1.

Table 2: Interpretation of the image of the space. Comparison between the results achieved at the beginning and end of the distance mode. Topic: Sketches of the *Młynówka Królewska* park.

Academic year	Teaching mode	No. of students	No. of works graded <i>very good</i>	Percent of works graded <i>very good</i>
2019/2020	Distance	239	57	24 %
2020/2021	Distance	231	31	13.7 %



Figure 1: CUT, main campus at Warszawska Street. Student works from 2019/2020: Agata Stasiowska (left) and Aleksandra Bator (right).

### Creative Drawing Based on a Set Topic

Creativity is the essence of the architect's professional work and its effectiveness, no matter if the work is strictly creative or recreative, i.e. consisting in the interpretation of an existing project. Inventiveness, the ability to look for inspiration and to interpret leading trends is, to a large extent, an acquired skill. Therefore, exercises of this nature are included in the drawing curriculum at the CUT. They demand more attention and concentration, especially when the student lacks proper intellectual predispositions and knowledge.

The statistics included in Table 3 refer to the results obtained in the classroom-based and distance mode of education.

Table 3: Creative representations based on a set topic. Comparison between the results achieved in classroom-based and distance education. Topic: Fractal composition.

Academic year	Teaching mode	No. of students	No. of works graded <i>very good</i>	Percent of works graded <i>very good</i>
2017/2018	Classroom	239	0	0 %
2020/2021	Distance	231	30	13.4 %

The conclusions are clear and indicate that students in distance learning showed more interest in submitting their assignments for evaluation and that their grades were better. However, although they achieved above-average results, it should be noted that the perception of new issues in mathematics, also reflected in the latest architecture, was better among classroom-based students. Apparently, direct contact with several tutors and direct conversations aroused greater interest in the issues and led to a deeper understanding of the topic.

### Creating Representations of Iconic Contemporary Realisations

The aim of the exercise was to present an architectural project that is one of the canons of contemporary architecture, and to gain experience in project presentation.

By studying the design documentation and its implementation, the student can thoroughly analyse the design in terms of both functional assumptions and the composition of form. Importantly, while reading the documentation, one can individually interpret the intentions of the project's designer regarding the composition of space, the use of materials, their colour, texture, details, and above all, the general intentions of the designer. This stimulates new areas of creativity by triggering a new way of thinking about the composition and the possibilities of building space and form. In addition, it forces the student to carefully observe the realised architecture.

An example of a unique solution in contemporary architecture, in this case the Casa Bianchi house designed by Mario Botta, may, on the one hand, inspire students to search for their own synthetic, economical architectural forms and, on the other hand, help them to acquire the skills of adequate graphic presentation. An important issue is gaining competence in interpreting and creating a visual message, and developing the ability to understand the design problem and create one's own message while taking into account the context.

In this exercise, the professional experience of teachers is of paramount importance, as the practical knowledge of the architect and the rules of practicing the profession, allow the teachers to provide truly valuable comments [4].

The statistics included in Table 4 refer to the results obtained in the classroom-based and distance mode of education.

Table 4: Creative representations of iconic contemporary projects. Comparison between the results achieved in classroom-based and distance education. Subject: Casa Bianchi design by Mario Botta.

Academic year	Teaching mode	No. of students	No. of works graded <i>very good</i>	Percent of works graded <i>very good</i>
2017/2018	Classroom	239	13	5.4 %
2020/2021	Distance	231	49	21.2 %

#### Drawing Students' Own Projects

The task that sums up the experiences gained during the subsequent exercises is creating a perspective image of students' own projects at the end of the semester. Integrated activities of design and drawing departments allow students to experience the practical effect of the implemented educational programme. Therefore, this work is at the same time the final stage of designing and the visual presentation of the project conveying its guidelines, and the author's concept and intentions in relation to the surrounding spatial context. Such a visual message should ultimately serve as a means of communication with the recipient and at the same time have aesthetic values.

It should be emphasised that the artistic value of the presentation is crucial, because it often determines the reception from the audience. In the task, the choice of media is limited to traditional techniques, except strictly painting techniques. The basis is drawing in a permanent medium with a very limited palette of colours (Figure 2).

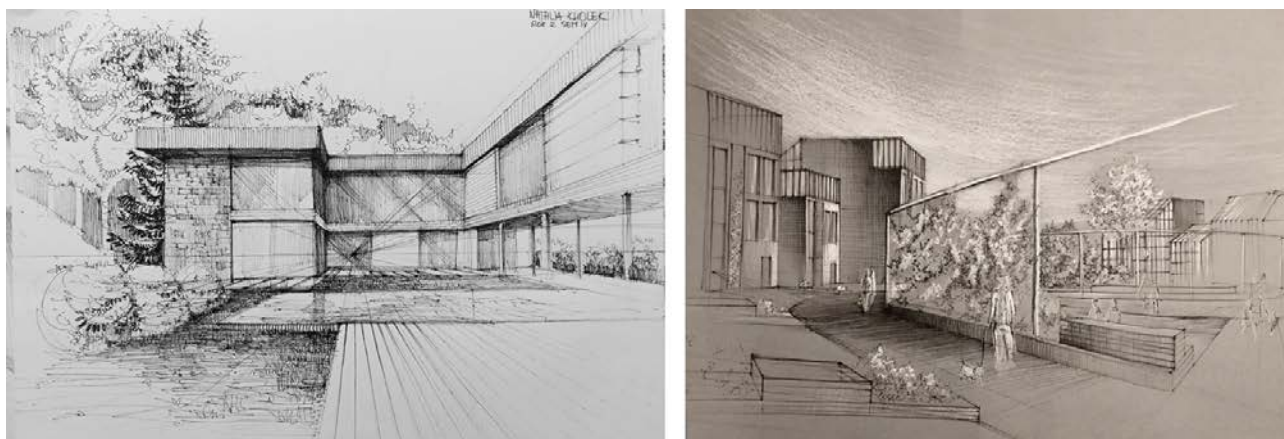


Figure 2: Illustration of students' own projects. Students: Natalia Kwolek, 2019/2020 (left) and Patrycja Mikolajek, 2020/2021 (right).

The statistics included in Table 5 refer to the results obtained in the classroom-based and distance mode of education.

Table 5: Illustration of students' own projects. Comparison between the results achieved in classroom-based and distance education. Students' own projects - perspective.

Academic year	Teaching mode	No. of students	No. of works graded <i>very good</i>	Percent of works graded <i>very good</i>
2017/2018	Classroom	239	12	5.5 %
2020/2021	Distance	231	50	21.6 %

It should be emphasised that enabling students to acquire a skill as important as translating one's intentions into images and creating a subjective message is certainly one of the most important elements in educating architects. The ability to create a personal form of expression and its visualisation most often determines professional success. Although electronic media offer perfect technical possibilities and even now the world of architecture cannot function without them, they still seem to fail to reflect all aspects of the created message. Therefore, freehand drawing and ways of illustrating the design process remain included in the curriculum for architectural engineers.

The numbers in the tables show that much more students in remote learning received the highest grade than students in classroom-based education. However, this does not mean that their substantive level is adequately high. The vast majority of these best-rated works were distinguished by diligence rather than creativity in the interpretation of the task or the quality of the graphical presentation.

## CONCLUSIONS AND FINAL REMARKS

The analyses presented in this article relate to the subject Graphic Art Techniques. Freehand Drawing, but many observations and generalisations also apply to other subjects, such as graduation design. In this case, the experience of previous years shows that the difference between classroom-based and distance learning lies in students' engagement in the project. In distance learning, the rational and precise transmission through MS Teams seems to deprive students of the enthusiasm and emotions that are present when they work as a team in the classroom.

It is also worth adding that although the implementation of the programme and the number of tasks to be performed are basically the same, it does not mean they are identical as the way of presentation differs significantly. Drawings of the set objects made in the open air or from a model in the classroom-based mode lose their authenticity of reception in the remote mode mainly because students do not acquire the skill of careful observation. The objects are copied from photographs which are already processed images and despite careful workmanship, the drawings are just a replica of someone else's interpretation. This imitativeness can be seen in the simplification, lack of details, errors in perspective or the lack of expression in the way of drawing lines or using light. Therefore, greater diligence with which the tasks are performed in distance learning does not make up for their reduced substantive value [5].

Another significant difference is the lack of a wide debate following the presentation of tasks in distance learning. In the classroom-based mode, the announcement of topics was usually followed by a discussion on the methods of interpretation, an analysis of the available means of expression and criteria for selecting graphic techniques. In distance learning, the questions generally concern organisational matters. During individual assessment, only a small percentage of students want to learn more about the task.

The presented experiences, on the one hand, encourage reflection on the quality of distance learning and the opportunities it offers, and on the other hand, prompt verification of the existing programmes and increased diversification of the teaching content and methods in the classroom-based and remote modes. It seems that solely distance learning is slowly coming to an end, but the experience gained should be summed up and an attempt made to synthesise and modify the programme in the case of random events or the need to extend the educational offer. Therefore, it is necessary to develop the principles of e-learning that would prevent the quality of education from deteriorating and enable the achievement of the expected outcomes. Better quality of learning with the use of modern tools can determine the successful future of education in general, and academic education in particular.

In conclusion, it ought to be said that teaching art classes in the remote mode is undoubtedly a very demanding task. Transferring knowledge with the use of increasingly more advanced digital techniques is possible in relation to most art topics and issues, but certainly not all. The lack of a *master's hand* and direct contact during assessment in the remote mode indicate that direct communication and the possibility of making immediate corrections to student work are the essence of knowledge transfer.

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