

Improving the professional competencies of architects by optimising on-line freehand drawing syllabi

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ABSTRACT: In this article, the author discusses an attempt to adjust the syllabus of a freehand drawing subject, taught to first-year students of Landscape Architecture at Cracow University of Technology (CUT), Kraków, Poland, and the International School of Engineering (ISE) at Tianjin Chengjian University in China, to the changing requirements. The purpose of this undertaking was to improve the efficiency of teaching drawing skills once the subject had to be moved on-line. The data collected from anonymous surveys confirm that the students from Poland and China positively assessed the freehand drawing syllabus from the perspective of professional skills they were able to acquire and develop. The acquired experiences could turn out useful in teaching freehand drawing not only on-line, but also in a hybrid and on-site system.

INTRODUCTION

It is a common practice across university-level architecture programmes to modify their curricula in response to the changing needs and requirements of the architectural profession [1]. The increasing student mobility (international collaboration between universities, international Erasmus student exchange programmes, forced displacement caused by war or conflict) is yet another factor triggering the adaptation of teaching methods. In particular, the introduction of emergency remote teaching (ERT) [2][3][4] during the Covid-19 pandemic necessitated the adjustment of existing syllabi to the new challenges in order to provide architecture students with the best quality on-line education possible. Despite many inconveniences, this form of study has contributed to the development of new teaching skills and has served as an inspiration to rethink and improve freehand drawing syllabi. These new experiences have opened the door to a more *globalised* approach to teaching drawing skills, which can be offered on-line to different groups of students, including those living in distant countries. They can be used in combination with on-site drawing classes taught in a studio (hybrid learning).

To improve the professional competencies of their students, universities offering architecture programmes share their experiences, for instance by establishing international teaching curricula and inviting academic teachers from other countries to teach either on-line or in-person classes as visiting professors. One good example of such a joint project is the collaboration between Cracow University of Technology (CUT), Kraków, Poland, and the International School of Engineering (ISE) at Tianjin Chengjian University, China, described in this article. Within the project, teachers from the CUT teach freehand drawing classes to ISE Landscape Architecture students. The collaboration facilitates experience sharing and learning about original teaching syllabi, not to mention precious contacts with other cultures and creative inspirations that stem from diversity.

Such changes affect nowadays the role and importance of freehand drawing as a separate subject as well. Currently, its function has been reduced to an auxiliary step in the design process, focusing mostly on creating freehand visualisations of designs. Meanwhile, scientific literature clearly emphasises the importance of freehand sketches at the initial stage of design, when the internal dialogue of the author with himself or herself plays a crucial role for the subsequent phases of the creative process. All these factors only strengthen the importance of optimising the freehand drawing syllabus and introducing diverse sketching themes. The improvements made by the author of this article to the syllabus and the selection of topics aimed at developing the competencies of future architects were inspired by several academic publications. In particular, worth mentioning are the dialectics between the two ways of reasoning: *seeing as* and *seeing that* in a sequence of consecutive sketches discussed by Goldschmidt [5]. Within the creative process, sketches represent an internal conversation inside the student's mind that involves ongoing verification and adjustments to his/her way of thinking. On the other hand sketches offer an opportunity for exploration and discovery, e.g. topics with transforming and synthesising of the forms [5]. Further, Do and Gross emphasised that sketches, due to their ambiguity and imprecision, are a great tool in the process of searching for alternatives [6].

In this article is presented an attempt to adjust the syllabus for a freehand drawing subject, taught to first-year students of Landscape Architecture at the CUT and the ISE, to the changing opportunities and needs (on-line education). The syllabus focuses on key issues and skills that the students must acquire in order to ensure that they have competencies necessary to find a job in their profession in the future. The purpose of the research was to improve the efficiency of teaching drawing skills once the subject had to be moved on-line. The adopted teaching syllabus, adjusted to the changing needs and requirements, was assessed by students from Poland and China who were asked to fill in anonymous questionnaires. Fewer classes mean that students' engagement, clear focus and attention, along with an appropriate selection of topics, are required to attain this goal. In this article, the author argues that although the freehand drawing classes were taught on-line, it is still possible to improve students' competencies essential in their future work.

METHODS

The research was based on empirical and experimental methods, the former rooted in many years of teaching experience of the author. Furthermore, the research also comprised surveys carried out among Polish (CUT) and Chinese (ISE) first-year students of Landscape Architecture, who were asked to assess the syllabus and the learning outcomes of the Freehand Drawing subject.

The teaching of drawing - both on-site in a studio and during on-line classes - should meet certain professional objectives with regard to the competencies of future architects. These include, without limitation:

- Analytical thinking;
- Work requiring creativity;
- Independence and autonomy;
- Expert status.

These objectives are particularly relevant to teaching drawing, as the skill contributes to the development of analytical and creative thinking and plays a role in shaping independent thinkers and autonomous creative personalities. To become an expert, on the other hand, it is essential to learn the rules of perspective, composition, colour, etc, and useful to know how to present one's projects visually.

The group of Polish students comprised 22 people, while the Chinese group had 45 members. Each of the groups followed a subject consisting of 30 teaching hours (30 x 45 minutes) for the first-year students enrolled in Landscape Architecture programme in the second semester of the academic year of 2020/2021. The subject was taught on-line and both groups were offered five similar drawing topics. The adopted feedback method during the class and the procedure of sending back works for student assessment were also the same in both groups. The collaboration between the CUT and the ISE begun in 2021 and is set to last until the end of 2028. As a result, the Chinese students of Landscape Architecture undergraduate programme (Bachelor's degree) will be awarded a double diploma upon graduation. The programme spans undergraduate (first-cycle) and graduate (second-cycle) studies and is taught in English. In 2021, due to the Covid-19 pandemic, the classes were taught on-line. Eventually, academic teachers from Poland are expected to regularly visit the Tianjin Chengjian University, to teach on-site classes. Chinese students are also expected to attend some of their classes in Poland.

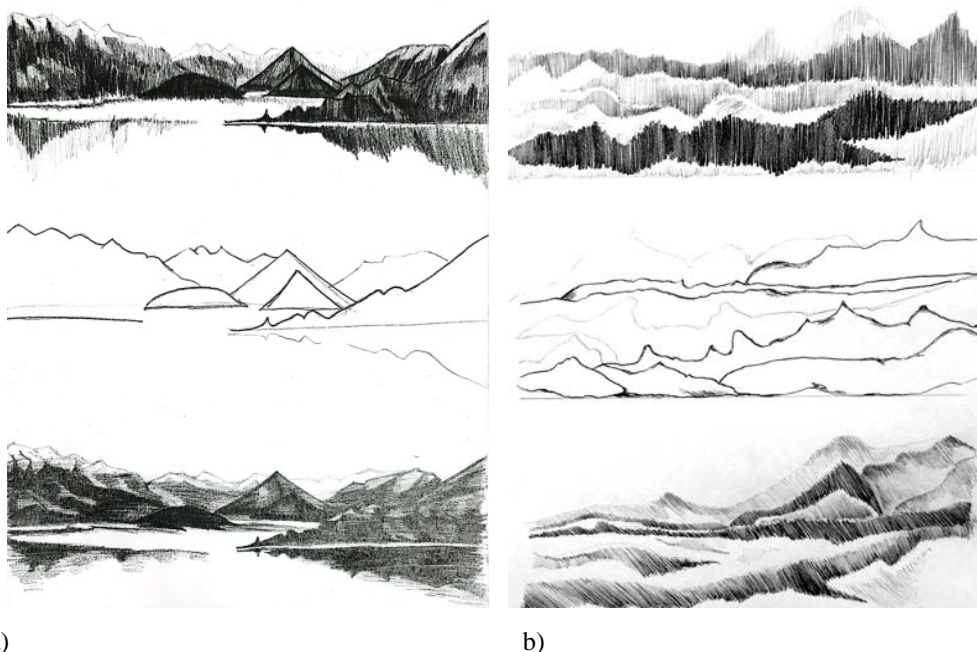


Figure 1: The subject of the drawing: sketches of panorama: a) author: Zexuan Kong - ISE student; and b) author: Izabela Niemiec - CUT student.

The freehand drawing syllabus is focused on developing the following competencies in students:

1. Improvement of analytical thinking - this was mostly achieved by short, *ad hoc* sketches, introduced to draw students' attention to the importance of a comprehensive analysis of the designed forms, structures and interiors, with full awareness of the interconnections between specific elements and their importance for the composition. Thanks to the in-depth analysis, students could see the forms *anew*, and their expanded perception translated into a better understanding of the designed forms, e.g. subject: sketches of horizontal landscape;
2. Development of creativity - facilitated by sketching themes promoting flexible thinking, assuming various approaches to the forms, transforming and synthesising them in one's own imagination, e.g. subject: the synthesis of the tree, sketches of the plants;
3. Development of independent thinking - students were allowed to select their own path and freely choose their sources of inspiration, as well as to use a variety of techniques and visual presentation methods. The feedback was based on students' ideas and their potential, exposing their best sides, e.g. subject: sketches of panorama (see Figure 1);
4. Improvement of the visual presentation of projects - the Faculties of Architecture at the CUT and the ISE decided to integrate syllabi across subjects. As a result, two new topics were added - sketches and perspectives for students' own designs. The freehand drawing class offered an opportunity to practice sketches of the designed forms in perspective and learn a variety of presentation methods;
5. Acquiring the knowledge on the rules of perspective, composition and colour - students had access to lectures and introductory materials on certain topics focusing on the rules of creating landscape and urban interiors, the construction of forms, perspective, composition, etc, e.g. subject: sketches of landscape/urban interior (see Figure 2);
6. Encouragement and motivation to engage in additional/extracurricular forms of learning/improvement of one's qualifications in the area of drawing/painting (courses, workshops, *plein air* sessions, exhibitions) during studies;
7. Encouragement and motivation to draw/paint for *themselves*, outside of the study curriculum, to record one's ideas or observed forms in sketchbooks, etc.



Figure 2: The subject of the drawing: sketches of landscape/urban interior; a) author: Yuxi Gou - ISE student; and b) author: Izabela Motyka - CUT student.

The switch to on-line teaching also necessitated some organisational changes:

- Preparation of teaching materials in the form of live presentations (synchronous) during classes, also available anytime on Delta or Teams platforms (asynchronous presentation);
- Specification of clear and transparent rules for awarding credits for the subject; clear identification of the goals of specific exercises and grading criteria, clear presentation of topics;
- Flexible schedule adjustable to unexpected changes, unforeseen problems and students' needs. Option to participate in classes on additional dates in case of absence due to *force majeure* [7] and the extension of deadline to upload works to the Delta platform;
- The use of on-line tools (a whiteboard for providing feedback on students' works) and off-line methods (feedback on drawings sent to students);
- Ongoing communication with the students, fast response to questions instrumental to the timely performance of tasks, a mix of various forms of communication.

RESULTS

The author analysed the results of an anonymous students' survey carried out in the second semester of 2020/2021 among first-year students of the Landscape Architecture programme at the CUT and the ISE. Of 22 students in the Polish group, as many as 16 responded, whereas in the Chinese group 18 of 45 students provided their feedback (additionally, three persons from the group sent their surveys incomplete). The comparable number of students who took part in the survey - 16 from Poland and 18 from China, the analogous number of teaching hours and the five similar topics allow for confronting the material and carrying out a comparative analysis.

In their surveys, students answered five questions assessing the syllabus of the freehand drawing subject in the context of acquiring new competencies and learning outcomes. On top of this, they could also express their opinions, comments and submit their proposals. The teacher takes this input into account when constantly improving the syllabi for the subsequent years. The responses given by students from Poland and China are presented in Table 1.

Table 1: Comparison between ISE and CUT students' answers to survey questions 1 to 5.

Survey questions 1-5	Yes		Difficult to say		No	
	ISE	CUT	ISE	CUT	ISE	CUT
1. Does the freehand drawing syllabus help students to develop analytical thinking?	16 89%	16 100%	2 11%	0	0	0
2. Do the topics drawn from imagination help students to develop their creativity (e.g. sketches involving synthesis, transformation)?	15 83%	16 100%	3 17%	0	0	0
3. Does the freedom to choose one's own way and search for inspiration allow students to develop independent thinking?	16 89%	15 94%	2 11%	1 6%	0	0
4. Does the syllabus help students boost the visual presentation of designs?	16 89%	12 75%	2 11%	3 19%	0	1 6%
5. Does the syllabus help students to acquire knowledge on the rules of perspective, composition and colour?	18 100%	16 100%	0	0	0	0
Average percent of total 1-5	90%	94%	10%	5%	0	1%

Two additional questions included in the survey concerned the improvement of students' competencies by drawing/painting *for themselves*, outside of the study curriculum, and the involvement in additional extracurricular forms of learning (courses, workshops, *plein air* sessions, exhibitions, etc). The responses given by students from Poland and China are presented in Table 2.

Table 2: Comparison between ISE and CUT students' answers to survey questions 6 and 7.

Survey questions 6-7	Many times		Rarely		No	
	ISE	CUT	ISE	CUT	ISE	CUT
6. Have you participated in additional/extracurricular forms of learning/improvement of one's qualifications in the area of drawing/painting (courses, workshops, <i>plein air</i> sessions, exhibitions) during studies?	5 28%	3 19%	5 28%	1 6%	8 44%	12 75%
7. Do you draw/paint <i>for yourself</i> outside of the study curriculum?	3 17%	5 31%	12 66%	9 56%	3 17%	2 13%

Conclusions drawn on the basis of survey analysis:

- The majority of students from Poland and China positively assessed the syllabus of the Freehand Drawing subject from the perspective of competencies they acquired (94% of the CUT students and 90% of the ISE students);
- Scarce involvement of students in activities instrumental to the improvement of competencies in the field of drawing and painting (additional forms of training - courses, *plein air* sessions, exhibitions) testifies to the excessive number of coursework hours and the lack of motivation to engage in this type of activities (28% of the ISE students declared *many times* and 28% *rarely*, 19% of the CUT students declared *many times* and 6% *rarely*);
- A relatively high percentage of students who additionally draw and paint outside of the study curriculum confirm that this is still an important activity for them (17% of the ISE students declared *many times* and 66% *rarely*, 31% of the CUT students declared *many times* and 56% *rarely*). The fact that the surveys were anonymous makes it impossible to verify whether the students drawing *for themselves* obtained better grades. The experiences of the author of this article confirm the unequivocally positive impact of additional drawing activities on the grades.

The survey results can serve as a basis for the following conclusions:

- In on-line learning, sketches are more effective and useful than insightful and laborious studies of still life;
- The diversity of topics and drawing techniques, the possibility to approach the tasks individually all contribute to higher satisfaction from the final outcome and are useful in engaging students' attention;

- Clear definition of learning outcomes facilitates a more mindful approach to the cognitive process in students, thus contributing also to independent thinking;
- Clear and transparent rules for awarding credits for specific tasks, as well as clear evaluation criteria help students to actively engage and contribute to better self-organisation;
- To obtain good learning outcomes, it is necessary to motivate students to work independently on their own development;
- Ongoing communication with students and short response time to students' questions facilitate remote learning, but poses an extra burden for teachers;
- Asynchronous materials allow students to verify the topics of tasks, requirements, deadlines at any time; in on-line learning, they provide an important supplementary support that can be also used during on-site classes;
- Interactive feedback (using an on-line drawing whiteboard) makes it possible to use students' works to present a variety of possible paths of exploration and teaches mindful composition - the works can be observed from close and from afar;
- On-line learning allows for a more relaxed timeline for drawing - in a studio, the feedback is given after the class; during on-line learning, students have more time to submit their work; a student may also choose a more convenient time or day to draw, taking account of other time restraints (classes and project requirements from other subjects).

The achievement of learning outcomes in an on-line (or on-site) freehand drawing class is affected by the following factors:

- Ensuring emotional and cognitive stimulation conducive to a creative process (variability, avoiding boredom), encouraging interaction between students and the teacher and between students themselves;
- Leaving students' some space for freedom, individual input on the topic;
- Providing students with necessary support (timely feedback and ongoing communication confirming teacher's care), as well as a sufficient quantity of corrections given in a friendly atmosphere.

CONCLUSIONS

On the basis of the surveys one could conclude that the students from Poland (94% of the CUT students) and China (90% of the ISE students) positively assessed the freehand description drawing syllabus from the perspective of skills they were able to develop. The on-line subject was based on an optimum syllabus, allowing students to develop skills instrumental for their future professional work.

The acquired competencies will certainly turn out useful in their future jobs. Sketches are an effective teaching form, deeply satisfying to students. Despite the necessity to move freehand drawing subjects on-line, it is possible to improve students' competencies crucial for their future work. Nevertheless, virtual classrooms will not replace the actual experience of direct contact between teachers and students during on-site learning. Topics involving synthesis and transformations teach young people how to foresee consequences, identify inconsistencies and mindfully improve the designed architectural forms.

The choice of one's own path to explore, the choice of a technique or response to the feedback foster students' independent thinking. Students who are left to make their own decisions learn how to be independent and responsible.

The engagement of students and better outcomes observed in the case of sketches combining drawing from sight and drawing from imagination prove that such tasks may be very successful in stimulating creative thinking with the use of a drawing. Models of thought processes discovered through sketching may turn out useful in students' future creative work, where the flexibility of thinking is a major advantage.

The syllabus will need to be further adjusted in the future, to respond to the changing requirements. Irrespectively of any modifications, however, students must always find it interesting and motivating.

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