

Innovative methods in teaching improve the creativity of landscape architecture students

Beata Makowska

Cracow University of Technology
Kraków, Poland

ABSTRACT: Faculties of architecture nowadays are in the process of introducing innovative teaching methods, hoping to improve the quality of education. The aim of this article is to present modifications to teaching methodology in freehand drawing lessons, based on a case study, of landscape architecture students in the Faculty of Architecture at Cracow University of Technology (FA-CUT), Kraków, Poland. The selection of innovative topics at the FA-CUT has a significant impact on the development of students' creativity. Independent formulation of original opinions teaches the students how to be constructively critical, fuelling the search for new, original solutions. The research results justify the conclusion that an experimental empirical study verified the hypothesis concerning the importance of methodology and topics for the development of students' imagination. They are based on the latest research in education and psychology, encouraging a creative approach to issues and stimulating students' cognitive motivation.

INTRODUCTION

Highlighted in this article is the pressing need to adjust the freehand drawing curriculum in the Faculty of Architecture at Cracow University of Technology (FA-CUT), to meet constantly evolving requirements and new challenges. Practising architects and landscape architects face increasingly high expectations regarding their competencies. It is becoming ever more urgent to develop young people's skills in terms of creative thinking, innovative approach and the ability to make independent design decisions. According to Professor Jacek Gyurkovich, Dean of the FA-CUT:

The goal of teaching the art and skill of design is to prepare students, future architects, for making independent design decisions concerning the shaping of architecture and the associated open spaces to satisfy the needs of individuals and social groups [1].

For future architects, it is equally important to teach them how to run the internal and external dialogue and apply the feedback method to the design process: *...It seems that many problems with the inappropriate performance of buildings could be prevented by the use of feedback procedures introduced into the educational systems [2].*

This method can be applied successfully to freehand drawing, which offers an effective language of communication between students and teachers, and in the future also between a designer, a constructor and their client [3]. It is important that the students develop a *thinking pattern* in a double-loop learning process. In this process the inconsistency between the original action plan or between its purpose and outcome, is corrected by ongoing exploration and definition of new determinants by way of drawing. In a contemporary, complex world, teaching young people how to approach design problems in a flexible, constantly evolving and creative way, is a must [4][5].

In consequence, and as in other countries [6][7], the FA-CUT has been implementing various innovative curricular enhancements, including in the teaching of freehand drawing. They are based on traditions of education through coaching and learning-by-doing. The assumption about the new model is, among other things, that integration of drawing and design classes ensures well-co-ordinated teaching of design (integrated design), which saves students' time and gives teachers an opportunity to pass on their experience. According to Kuc, who has participated in the Building Construction course: *This supports enriching the quality and the complexity of design projects [8].*

The role of freehand drawing is important in this integrative process. It serves as a basis for improving the quality of designs and developing maturity in young people's thinking:

Drawing and modelling are important tools. They facilitate improving the quality of the landscape architecture structure [8].

According to Herr:

...drawing-based exercises provide a means of qualitative learning by relating more closely to architecture students' tendency to visually understand and express ideas, while hands-on exercises support applied learning [9].

METHODOLOGY

The research presented here was based on the author's teaching experiences over 30 years. The new syllabus was prepared by the author, who teaches first-year students of landscape architecture in the first and second semesters at the Division of Freehand Drawing, Painting and Sculpture in the FA-CUT, under the supervision of Professor Andrzej Białkiewicz. In the academic year 2018/19, 32 students are enrolled in the programme, with two teaching staff members (the author collaborated in 2018-2019 with Professor Ryszard Graza and earlier between 2000 and 2018 with Professor Joanna Stożek). Classes take place once a week (2 x 45 minutes) for 15 weeks in semesters 1 and 2. The first year is followed by a one-week plein air drawing session (30 hours). Tasks are carried out in a room with a group of people numbering between 18 and 35. The presence of peers is a motivating factor for students.

The author's teaching experiences and the introduction of new topics to the curriculum of landscape architecture have enabled the incorporation of both observation and experimental methods of work. Additionally, the method relies on extensive analysis of the teaching strategies in the Division of Freehand Drawing, Painting and Sculpture since the very onset of its existence (in the years 1945 to 2019). For this purpose, photographs were taken of the best archival designs by students from the period 1945-2018. These included university-time drawings by outstanding architects recognised in Poland and abroad.

The author of this article has taken 796 photographs of archival designs by architecture students between 1945 and 1963 and 963 photographs of designs by landscape architecture students between 2000 and 2019. The photographs served as a starting point for the analysis of topics covered, the number of hours dedicated to them and techniques applied. The collection of archival drawings enabled the pursuit of research on the changing stylistics of representing reality, the selection of models and tasks, and the evolution of the syllabus. Importantly, when developing a new syllabus, it is useful to examine experiences of other academic centres and recent research in this field [10][11].

For several years the author has participated in conferences dedicated to teaching drawing, as well as presented papers and published seven articles. Emphasised in the author's work has been the role of sketching as an important correction tool in the design process, as well as a creative way to explore reality that fosters the development of imagination. The publications underscore the significance of both traditional and contemporary artistic tools in recording thoughts and communication between the architect and their clients, which complement each other. The author prepared papers for international academic conferences in Aix-en-Provence (the paper entitled *The importance of drawing and painting education in the development of a future architect in the age of digital technologies*, published in the Journal of Teaching and Education) [12], and in Copenhagen (the paper entitled *Sketches which develop creative thinking skills and imagination*) [13].

The same topic was discussed during international conferences in Poland and Kraków in 2013 and 2015 (the paper entitled *Sketches and their role in creative process of architectural space description* and *Architectural sketch as an ambiguous interactive play* was published in Technical Transactions [14]; *The significance of sketches in the education of architects and in the development of their professional skills* was also published in Technical Transactions) [5], and at a conference in Szklarska Poręba, in south-western Poland, in 2017 (the paper entitled *Sketching as a record of thoughts* was published in the journal, *Architectus*) [15].

The curriculum and teaching methods applied to the subject, landscape architecture, at the FA-CUT were also presented at the conference INTED2018 (International Technology, Education and Development) in Valencia, Spain (the paper entitled *Teaching freehand drawing at the faculty of architecture in the context of technological change*) [16] and at INTED2019 (the paper entitled *Freehand drawing education at the Faculty of Architecture - innovations in teaching methodology*, which is now in the process of publication) [17].

In 2017, the author also organised an exhibition for students called *The future of drawing - freehand and hybrid techniques of spatial representation* [18]. It consisted of works by students of various years who responded to a question about the future of freehand techniques in spatial representation: what they expect to change and what they expect to remain constant and important. Students' visions served as a springboard for several salient conclusions.

The first one concerns the importance of direct communication between the mind and the hand in the thinking-drawing process; the value of freehand drawing as a medium of the author (i.e. a message revealing the truth about themselves and about their lives), and the unchangeably important role of perspective and colour in describing reality. Other conclusions pointed out the multi-layered nature of contemporary representation techniques, their hybrid character and the co-existence of traditional and computer-based techniques of spatial recording, which compete against, but also complement, each other. The exchange of experiences with other employees of architecture universities and the openness to the perspectives of students of landscape architecture, on the future of drawing, have significantly influenced changes made to the curriculum by the author.

NEW SYLLABUS OF DRAWING LESSONS FOR STUDENTS OF LANDSCAPE ARCHITECTURE

The extensive tradition at the Division of Freehand Drawing, Painting and Sculpture, as well as the analysis of the drawing teaching methods in the past (1945-2019), have served as a major source of inspiration for the methodology adopted. In particular, the comparison of students' works from the initial years of the programme (1945-1963) against contemporary ones reveals certain differences in terms of curriculum. Previously, a higher number of teaching hours allowed for time-consuming studies of anatomy, drawings of silhouettes, plaster shapes and live models. Now these issues have been restricted to, among other things, figure sketching and drawing masses of basic forms.

In the past, many teachers employed at the Division of Freehand Drawing, Painting and Sculpture held a degree in fine arts, and some of them used themes typical of the Academy of Fine Arts (still nature, lettering, and so on). In this way, students were given an opportunity to gain a versatile artistic education and learn a number of techniques. At present, many teachers are architects by education. Their knowledge of perspective drawing is highly useful when it comes to correcting students' assignments. Focus is placed on the development of the skill of design presentation and recording space.

Nowadays, access to good quality materials (paper, paint, ink, pens, and so on) is incomparably better than in the past, which can only enhance the quality of students' works. However, difficulties in obtaining resources sometimes inspired former students' experiments and discoveries.

In the past, many hours were dedicated to plein air sessions in urban locations (historic squares, streets) and building interiors (Wawel castle, churches), as well as architectural forms and details. The key focus of drawing was to study forms in their context: the outstanding architecture of the historic city of Kraków. Unfortunately, now this issue receives much less attention (one week of drawing practice, one or two classes a year). Highly valued plein air classes, consistently across decades organised in the beautiful old city, give students an opportunity to develop their skills of urban and landscape composition analysis, which are indispensable for design.

The study of architecture and landscape develops students' sensitivity to beauty, teaches them how to analyse the structure of forms and their mutual relationships, allows them to discover various structures and improve their knowledge of perspective. The limited number of hours necessitates concentration on the most practical architectural skills, so as to enable students to make efficient sketches and perspectives of observed and designed forms. The fact that the number of hours was higher in the past and students worked in smaller groups fostered better development of future architects.

Nowadays, the priorities in landscape architects' education have changed. It is a challenge to young designers to create functional, balanced architecture harmoniously merged with its context: *...we have to educate students to become thinkers, people with skills but who can think and who are open to the idea of knowing and of searching* [19].

This is why the adopted curricula focus on developing the flexibility of thinking which, apart from knowledge and skills, becomes one of the key competencies gained by the students of landscape architecture:

Transparency, flexibility, adaptability, quality, openness, creativity, innovation, mobility, experimentation, diversity, compatibility, comparability, parametricism, employability appears to be already established values which demand new strategies, new actions and new approaches to the structure of school curricula in order to respect the contemporary definitions of quality in architectural education [7].

A graduate's flexibility is important also in the context of future employment and increasing difficulties with finding work upon graduation, coupled with intensified specialisation and tough competition [20]. The trait of flexibility enables graduates to seek employment outside the professions of architect and landscape architect, in other areas, where innovative approach is appreciated. Another important objective is to develop a student's own, original and creative approach to design:

In this new social project of architecture, creative thinking is, more than ever, a fundamental condition. To be at the forefront of this new world, architecture needs to become more innovative [7].

It is crucial to ensure that students have appropriate conditions to discover their own potential and become passionate about creative work, because: *...Education is not the filling of a pail; it is the lighting of a fire* [21].

It is impossible to overestimate the importance of teaching student's independent decision-making from the very onset of the design process, when freehand conceptual sketches are made. This is why the teacher's feedback should take account of the student's independent decisions and skilfully perfect their ideas. The new syllabus includes topics that foster the development of creative thinking and stimulate both brain hemispheres. They include metaphor-based exercises, because metaphors introduce new elements facilitating comprehension of complex problems and stimulate a qualitative change in their analysis. The issues of key importance for the tasks for students assigned involve training the imagination, and the development of effective design problem-solving skills. The development of correct habits in terms of mental work supporting students' creative ability is one of the key goals of the classes.

PARTNERSHIP-BASED TEACHER-STUDENT RELATIONSHIP FOSTERS DEVELOPMENT

According to the methodology:

...the model involving the transfer of established knowledge is abandoned in favour of seeking the truth and co-creating knowledge by way of communication, open dialogue and polymorphic interpretation of events and symbols [22].

The role of the teacher is to provide appropriate guidance, correct the quality of the line, composition, and so on. Teachers also must be aware of the goal that the topic is meant to achieve and the skills that are to be learnt from the exercise. Those objectives are clearly defined when presenting the topic to the class, giving students an opportunity to participate in the lesson in a more mindful manner. Drawing enables students to organise the designed space in their minds, thus turning it into newly organised knowledge [23].

The introduction of elements of a play or game boosts student involvement, curiosity and enthusiasm (see Figure 1 and Figure 2). Engaged in an interestingly presented problem, they never get bored. When given freedom to interpret forms and select the source of inspiration, they gain the sense of liberty and satisfaction (see Figure 3 and Figure 4). Such exercises have an immense impact on the development of their thinking skills, while freedom and the lack of restrictions foster creative thinking. According to Stern, in students' artistic work:

...every incompetent interference can be harmful. Correction cannot rely on ready-made schemes, reveal teacher's surprise or involve their intrusive interference, but rather ensure the attitude that supports the entire process [24].

In Stern's view: *...It is not about modifying the curricula or perfecting the old ways. It is about the attitude to the other person, regardless whether it is a small child, an adult, someone who is disabled or regarded a genius [24].* However, many years of experience in teaching drawing at the Faculty of Architecture offer a resource worth drawing from.

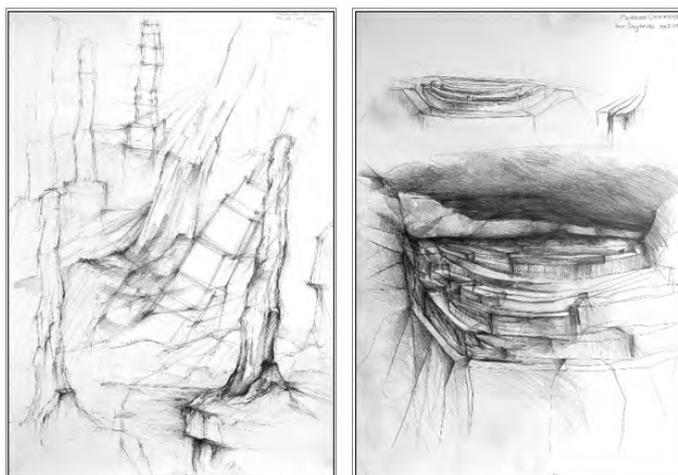


Figure 1 and Figure 2: Students' drawings from the archives at the Division of Drawing, Painting and Sculpture. Drawing by A. Hamala (left, 2006) and M. Choromańska (right, 2007) (Photographs by the author, 2007).



Figure 3 and Figure 4: Students' drawings from the archives at the Division of Drawing, Painting and Sculpture. Drawing by K. Blukacz (left, 2017) and A. Skrzypek (right, 2017) (Photographs by the author, 2017).

Obviously, the corrections should not be authoritative - their aim is to show the right direction, as in navigating a ship. A student can solve a task in their own way: diversity in problem-solving must be appreciated. By making a small sketch that accompanies a student's preliminary drawing, the teacher shows a version of the idea that has richer meaning and graphic value. When working with students, it is most important to motivate them to take up creative effort and create atmosphere conducive to that process:

...the way to increase and sustain people's creative performance is to provide an environment that encourages them to develop expertise, and maximize their motivation. This environment is one which simultaneously builds student confidence. It is this environment that is central to the organisation of this first year course [25].

The aim of the adopted methodology is not to *tame* the designer's hand and make them follow blindly the teacher's orders to get good marks. This is why students are given freedom to select inspiring motifs and the way of their representation, in terms of variety of techniques, free expression of the line, because: *...expression is born out of internal need [24].*

The point is to create an independent world, in which the teacher follows the student. In this co-participation it is necessary to form the individual approach and manner of subject interpretation.

RESULTS

Today, ongoing adjustment of teaching curricula to ever-changing needs has become a must. The introduction of an innovative syllabus for the students of landscape architecture has produced the following conclusions:

- Freedom of choice regarding the source of inspiration and interpretation in topics from imagination, as well as a choice of techniques and means of expression, support the development of students' creativity, enabling them to identify their original style.
- Shaping creative thinking-based intellectual work habits, as well as work on the development of one's own imagination is instrumental to students' education - the more opportunities students have to develop this skill the better the results they achieve.
- Frequent reliance on sketching in the curriculum ensures the flexibility of thinking, fast decision-making, cognitive economy, independence from rules, incessant interaction with imagination - all these aspects support ongoing improvement of the design concepts within a constant feedback process.
- Metaphorical thinking in the topics of works activates a creative approach to issues at hand stimulating students' mind and imagination.
- The engagement of teachers and the atmosphere they create during classes contribute to obtaining positive teaching effects; teachers' time and attention influence students' activity and the quality of their works (see Figure 5 and Figure 6).



Figure 5 and Figure 6: Freehand drawing lesson for students of landscape architecture. (Photographs by the author, 2018).

CONCLUSIONS

An experimental empirical study verified the hypothesis concerning the importance of methodology and selected topics for the development of students' imagination. They are based on the latest research in education and psychology, effectively activating a creative approach by students to issues at hand and stimulating their cognitive motivation.

A friendly atmosphere combined with constructive criticism produces higher involvement by the students. Such an approach improves the quality of teaching and helps to establish a partnership-based relationship and communication between student and teacher. This co-operation should involve the continued development and feedback evaluation.

REFERENCES

1. Gyurkovivh, J., Teaching design in the Faculty of Architecture at Cracow University of Technology. *World Trans. on Engng. and Technol. Educ.*, 16, 4, 334-337 (2018).

2. Celadyn, W., Feedback in a method of architectural education. *World Trans. on Engng. and Technol. Educ.*, 14, **4**, 468-472 (2016).
3. Goldschmidt, G., The black-curtained studio: Eulogy to a dead pencil. In: Bhatt, M., Hölscher, C. and Shipley, T.F. (Eds), *Proc. Spatial Cognition for Architectural Design SCAD 2011*, New York, USA, 1-22 (2011).
4. Argyris, C. and Schön, D.A., *Organizational Learning: A Theory of Action Perspective*. Massachusetts: Addison-Wesley (1978).
5. Makowska, B., The significance of sketches in the education of architects and in the development of their professional skills. *Technical Trans.*, **4-A**, 17-24 (2015).
6. Olszewski, A. and Pudlowski, Z.J., The outcomes and achievements of the Urban Design and Education Programme. *Global J. of Engng. Educ.*, 6, **1**, 7-16 (2002).
7. Spiridonidis, C. and Voyatzaki, M., Introduction. In: Spiridonidis C. and Voyatzaki M. (Eds), 13th Meeting of Heads of European Schools of Architecture. Learning for the Future. New Priorities of Schools of Architecture in the Era of Uncertainty. *Trans. on Architectural Educ.*, **54**, 12-17 (2011).
8. Kuc, S., Impact of the Construction subject on the quality of student projects in general building design in landscape architecture. *World Trans. on Engng. and Technol. Educ.*, 16, **4**, 456-460 (2018).
9. Herr, C.M., Qualitative structural design education in large cohorts of undergraduate architecture students. *Global J. of Engng. Educ.*, 15, **2**, 96-102 (2016).
10. Spiridonidis C. (Ed), Monitoring architectural design. Education in European schools of architecture. *Trans. on Architectural Educ.*, **19**, 3-66, 2002.
11. Nicol, D. and Pilling, S. (Eds), *Changing Architectural Education. Towards a New Professionalism*. London: Taylor & Francis, 307-316 (2000).
12. Makowska, B., The importance of drawing and painting education in the development of a future architect in the age of digital technologies. *J. of Teaching and Educ.*, 1, **5**, 131-135 (2012).
13. Makowska, B., Sketches which Develop Creative Thinking Skills and Imagination. In: What Images Do - Symposium, The Royal Danish Academy of Fine Arts, Copenhagen, Denmark, 29 (2014).
14. Makowska, B., Architectural sketch as an ambiguous interactive play. *Technical Trans.*, **9-A**, 185-190 (2015).
15. Makowska B., Sketching as a record of thoughts. *Architectus*, **2**, 15-23 (2018).
16. Makowska, B., Teaching freehand drawing at the faculty of architecture in the context of technological change. In: Gómez, C.L., López, M.A. and Torres, C.I. (Eds), *Proc. 12th Annual Inter. Technol., Educ. and Develop. Conf.*, Valencia, Spain, 5008-5012 (2018).
17. Makowska, B., Freehand drawing education at the Faculty of Architecture - innovations in teaching methodology. In: Gómez, C.L., López, M.A. and Torres, C.I. (Eds), *Proc. 13th Annual Inter. Technol., Educ. and Develop. Conf.*, Valencia, Spain, 5830-5834 (2019).
18. Makowska, B. (Ed), Przyszłość rysunku - odręczne i hybrydowe techniki przedstawiania przestrzeni. *Nasza Politechnika*, **2**, 31 (2017) (in Polish).
19. Kaferstein, J., Introductory Panel. In: Spiridonidis, C. and Voyatzaki, M. (Eds), 13th Meeting of Heads of European Schools of Architecture. Learning for the Future. New Priorities of Schools of Architecture in the Era of Uncertainty. *Trans. on Architectural Educ.*, **54**, 31-42 (2011).
20. Kot, S. and Ślusarczyk, B., Problems in the development of higher education in Poland. *World Trans. on Engng. and Technol. Educ.*, 12, **4**, 675-680 (2014).
21. von Meiss, P., Reflection and Deflections on Chania 2010. In: Spiridonidis, C. and Voyatzaki M. (Eds), 13th Meeting of Heads of European Schools of Architecture. Learning for the future. New Priorities of Schools of Architecture in the Era of Uncertainty. *Trans. on Architectural Educ.*, **54**, 23-29 (2011).
22. Tomaszewska, M., Wartość i rola twórczości w rozwoju uczniów. *Edukacyjne Dyskursy*. 5 February 2000, <http://www.edukacyjne.dyskursy.univ.szczecin.pl/wartosc.htm> (2000) (in Polish).
23. Gökan, K., Basic Design: As an Introduction to Architectural Design. In: Spiridonidis C. (Ed), Monitoring Architectural Design. Education in European Schools of Architecture. *Trans. on Architectural Educ.*, **19**, 17-26 (2002).
24. Stern, A., *Odkrywanie Śladu. Czym jest Zabawa Malarska*, Gliwice: Element, 89-90 (2016) (in Polish).
25. Parnell, R., The University of Sheffield School of Architecture: Year One Design Studio. In: Spiridonidis C. (Ed), Monitoring Architectural Design. Education in European Schools of Architecture. *Trans. on Architectural Educ.*, **19**, 57 (2002).