

WORKSHOP ACTIVITIES AS AN ESSENTIAL PART OF ARCHITECTURAL EDUCATION. MOSAIC

Joanna ZABAWA-KRZYPKOWSKA¹,
Agnieszka PLUSZCZEWICZ-FORNAL^{2*}, Krzysztof GROŃ³

¹ The Silesian University of Technology, Faculty of Architecture; Joanna.Zabawa-Krzypkowska@polsl.pl,
ORCID: 0000-0001-5272-6987

² The Silesian University of Technology, Faculty of Architecture; Agnieszka.Pluszczewicz@polsl.pl,
ORCID: 0000-0002-2849-8678

³ The Silesian University of Technology, Faculty of Architecture; Krzysztof.Groń@polsl.pl,
ORCID: 0000-0002-5152-0167

* Correspondence author

Purpose: The purpose of the article is to present the results of the work on the design and realization of the mosaic carried out within the subject of Sculpture at the Faculty of Architecture, Interior Design Faculty.

Design/methodology/approach: The article discusses the work of first- and second-year students of the Faculty of Architecture on the design and realization of a mosaic set in a specific cultural context relating to the identity features of the place for which it was dedicated. The methods of work, the design and execution process and the results of the work are presented. The workshop activities undertaken help to visualize to students the importance of art in architecture, as well as allow them to acquire soft skills needed in the modern world.

Findings: The study showed that participation in the mosaic-making workshop significantly supports the development of students' creativity, interpersonal skills and social awareness. By working in a team and completing 1:1 projects, workshop participants gained valuable experience in communication, decision-making and time management, which is crucial for their future careers. Moreover, the practical experience of working on mosaics allowed students to better understand the artistic value of this medium in public spaces, as evidenced by the survey results, in which 98.3% of respondents expressed their belief in the need for the presence of mosaics in contemporary architecture.

Originality/value: Universities and colleges, including architecture faculties, are constantly looking for innovative teaching methods to improve the quality of education. The article addresses the issues of artistic creation in a spatial context, fine arts in architecture as a factor in developing the artistic and research area in the Interior Architecture major at the Faculty of Architecture of the Silesian University of Technology in Gliwice, Poland.

Keywords: architectural engineering education, course assessment, studio teaching method, institutional culture, student-centered learning.

Category of the paper: Case study.

1. Introduction

Workshop activities have an important role in the teaching process, especially in the context of architectural education. In order to improve the quality of education, universities, including faculties of architecture, are constantly looking for innovative teaching methods. This article focuses on artistic creation in a spatial context and visual arts in architecture, examining their impact on the development of the artistic and research field. An analysis of the students' work on the design and realisation of a mosaic as part of the Sculpture course at the Faculty of Architecture at the Silesian University of Technology was carried out, paying attention to the working methods, design process, results and survey results. The conducted research confirms the significant impact of workshop activities on the development of students' creativity and artistic awareness, their communication skills and cooperation at each stage of the process. The article presents workshop activities as an important element of architectural education, stimulating sensitivity to art and enabling the acquisition of various competences necessary in the contemporary world.

2. State of research

There is now a significant interest in workshop activities as an important element of architectural education, which is reflected in academic studies. Research focuses on the use of various artistic activities, such as drawing, painting or sculpture, in the process of improving design skills. The papers highlight the important role of artistic subjects in the formation of architects' competencies. Makowska (2019) pointed to innovative teaching methods that improve the creativity of landscape architecture students. Similarly, Żychowska (2019) highlights the importance of teaching drawing to the new generation of architectural engineers. Zabawa-Krzyrkowska and Groń (2019) analyse architectural and artistic activities in the context of public space, highlighting the creative teaching of architecture students through murals. Wesółowski (2022) presents methods to enhance architectural engineering students' acquisition of technical and soft skills.

Artistic and research projects and activities that go beyond the standard curriculum are also analysed, aiming to make students aware of the importance of art in architecture and the development of so-called soft competencies, which contribute to increased competitiveness in the labour market. The works of Wesółowski, Muszyńska, Ceylan, Soygenis and other authors point to the relevance of these activities in the context of contemporary professional challenges.

The aim of this paper is to provide a holistic account of the didactic process, which was not only to complete a specific task - designing and making a mosaic - but also to explore what benefits both the tutors and students noted from the workshop work.

3. Methods

The long-term teaching experience of the authors of this article makes it possible to determine how the process of teaching visual arts develops visual skills, stimulates the imagination, sensitises, and helps to gain knowledge about visual arts in architecture. The skills acquired in the course allow students to realise their own concepts at different scales in architecture. They make it possible to work with a variety of tools to present their own design and artistic concepts to future investors.

Participatory observation during the entire creative process from the creation of the design work through to the execution process allows summaries to be made regarding the undertaking undertaken. The review of the works taking into account all the problems, as well as the student surveys, allow conclusions to be drawn which are helpful for the implementation of the curriculum, aimed at enriching the programme (including workshop activities).

Part I reviewed the student work. Based on observations during the creative process, the benefits and problems encountered at each stage of the assignment were analysed. In Part II, a student survey was conducted.

4. Background

Artistic subjects: Drawing, Painting, Sculpture, Basics of Design play a special role in the didactic process at the Faculty of Architecture of the Silesian University of Technology in Gliwice. The current curriculum of visual arts education at the Faculty of Interior Design was developed by architects and visual artists. The shape of education has evolved, subject to modifications (recently mainly due to curriculum changes and problems related to the Covid 19 pandemic). In the academic year 2021/2022, in the summer semester, as part of the Sculpture course, groups of six students realised a new theme - a large-scale mosaic project. The theme of the mosaic was determined by the subject instructors and related to the city of Gliwice and the Silesian University of Technology. The project was therefore to be set in a specific cultural context. An important aspect of the classes was to draw the students' attention to the role of the architect in the design process, as a person who inspires the potential investor in terms of understanding the location or selection of a site for an investment, and understanding its character. The analysis of the location included the architectural and landscape context and cultural value. Attention was paid to existing elements in the space such as scale, rhythm, subdivision and the colour of the surroundings.

5. Didactic process

As part of the introduction to the design subject, the students received as comprehensive a theoretical introduction as possible to the ceramics and realisations in the various historical periods of mosaics in and around Gliwice.

An initial acquaintance with the theory - literature, photo-documentation, catalogues - was followed by discussion and an exchange of experiences with the subject instructors. The students were given an initial overview of the technique, which was undergoing a renaissance, and were briefly introduced to both technological and pre-technical possibilities. At the same time, the outline of future activities and their planning began to emerge, an extremely important design phase that gave the student an idea of the goal towards which he or she could consciously work. Important at this stage of work was the search for motifs and contexts, including extremely important references to the places where the realisations would be presented - temporarily and permanently.

Notes, photographs, handwritten sketches or those using graphic tablets began to appear in large numbers. The whole process was accompanied by lively discussions, insights arising from various reflections, and the first conclusions were drawn.



Figure 1. Example of a presentation board prepared as part of the course Furniture design.

Source: Natalia Gach.

6. Design process

The first stage of the work was conceptual work - looking for inspiration, then visualising the idea in the form of a drawing and selecting the most interesting proposal. The students then made templates on a scale of 1:1, i.e. 150 x 150 cm. This part of the work took place at the Architecture Department of the Silesian University of Technology in Gliwice.

The review of the prepared proposals was followed by the selection of designs for implementation. The work took place in several interrelated stages and in a strictly defined order:

1. determining the scale and context of the site,
2. design selection,
3. colour development,
4. development of stencils - on tracing paper, foil, cardboard.

12 mosaics were created, 50% of the works related to Gliwice, 50% of the studies were connected with the Silesian University of Technology. All projects were accepted for further elaboration.

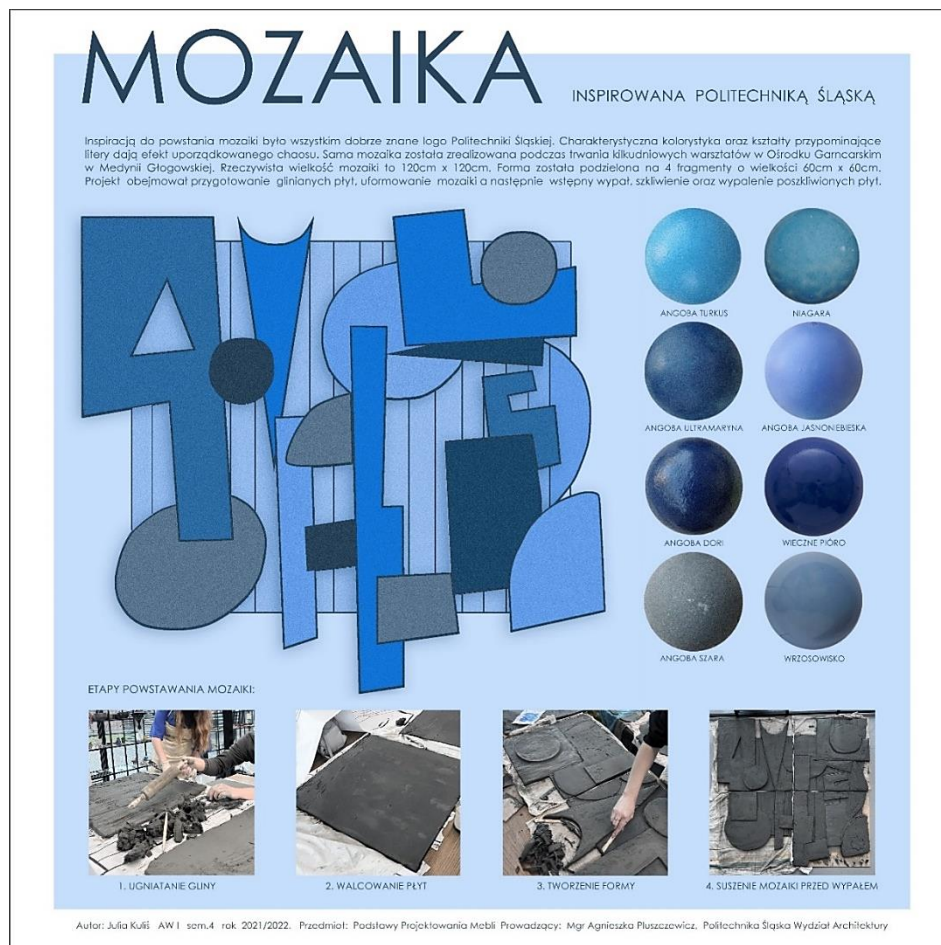


Figure 2. Example of a presentation board prepared as part of the course Furniture design.

Source: Julia Kuliś.

The next stage of the work involved a trip to the Pottery Art Centre in Medynia near Łańcut and making the designed mosaics on site. Pottery and ceramic workshops were held on 4-5.04 and 25-26.04.2022. A total of 74 students divided into two groups of 42 and 32 participated in the workshops.

The first stage was to roll the clay, establish the divisions, apply the design with templates to the target format of 120 x 120 cm, which resulted from the size of the clay kiln chamber, and then cut into mosaic pieces. This was followed by the next stages of the work: firing and glazing.

7. Technology

During the workshop work, it was decided to use high-fusing clay with the addition of chamotte, as it is more resistant to increased temperature amplitudes and humidity fluctuations.

In order to get a feel for the possibilities of the different types of ceramic clay before proceeding with the actual mosaics, tests were made on small formats referring to the size of a traditional tile. A number of interesting and stylistically diverse, although describing a similar theme, small sculptural sketches were produced. In each work, the thematic reference was the city of Gliwice with its characteristic motifs and the Silesian University of Technology, including the university's logo. Methods of moulding clay and tools of various types were tested.



Figure 3. Preparation of a 1:1 scale template and application of the template, ordering of elements.

Source: Joanna Zabawa-Krzypkowska.

Workshop activities as an essential part...

During the workshop, rolling and hand modelling using various tools were chosen as the method of moulding the clay. In addition, the students had the opportunity to try their hand at turning clay on the potter's wheel and produce rotating forms. Bowls, plates, cups and vases were created.

Firing (also known as baking) is a high-thermal chemical reaction that involves the physical conversion of soft, plastic clay into hard clay, during which various component-dependent gases are also released. This is a process of raising the temperature over a period of several hours to several days, followed by a second ascent.

It was decided to have firing under maximum control, i.e. in an electric kiln with a controller (microcomputer) and the possibility of setting the firing curve individually, thus minimising the risk of damage to the firing piece.

The final stage of the work was glazing, which took place in 2 stages - a theoretical stage and then a practical stage. The theoretical stage was extremely important, as it gave the authors of the work an initial idea of the effects, as well as the risks that occur during glazing. One method of glazing is the brush application method, which allows colours to be combined within a single plane. Colour is obtained by adding oxides, respectively: to obtain white - tin is added to ground glass dust, yellow - iron compounds, violet - manganese compounds, blue - cobalt, and green - copper. The students' work was glazed using the brush painting method.

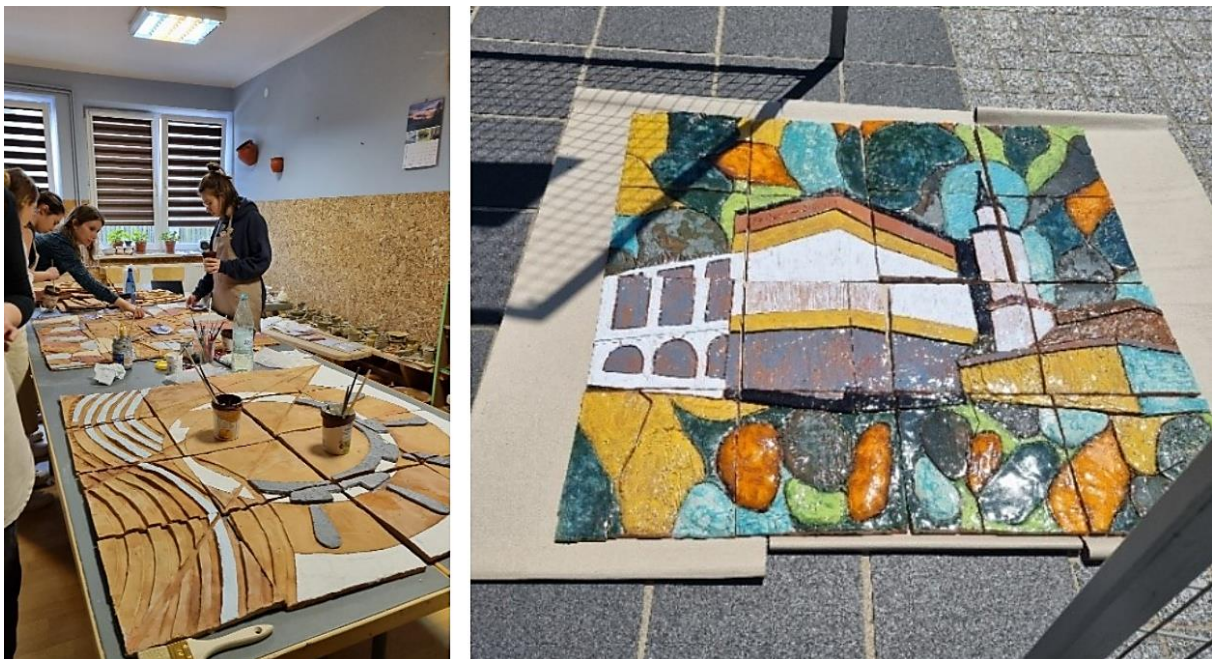


Figure 4. Glazing process and presentation of finished mosaics.

Source: Joanna Zabawa-Krzypkowska.

8. Questionnaire surveys

The work carried out on the mosaic was followed up by surveys, which completed the teaching and research process. The survey was conducted after the completion of the exercises and workshops among the students.

The survey was divided into two parts that addressed two issues:

- The general issue was to identify whether students knew the answer to the question: what is a mosaic and whether they could identify examples of mosaics in urban spaces. Then, on the specific examples of mosaics selected for the study, students expressed their individual opinion about them.
- The specific issues involved working on the creation of a mosaic in class and then creating one in a workshop in Medynia Głogowska.

For the vast majority of students, working with clay was a new experience, with as many as 45% responding that they had never had the opportunity to do so, and 35% of those surveyed had only carried out a sculptural task in the past (the moulding process alone, without firing or glazing), and only 12 people (20%) had previous experience with glazing and firing ceramic works. This shows that the majority of students were encountering a traditional craft technique for the first time, and that the large-scale project stage and the contact with the material were among the two most frequently indicated as the most difficult experience (32.8% of responses). The conceptual stage associated with generating ideas (39.3% of respondents), seeking inspiration (13.1%), and planning mosaic divisions and colour schemes (8.2%) were also challenging.

Further information about the difficulties encountered during the work was provided by additional open questions. Students indicated as problems in the design phase, among others: dividing the design into small matching elements without losing out on form, fitting in with the design brief, finding inspiration and ideas for a comprehensible, original and interesting mosaic form, lack of knowledge of the material. Obstacles encountered when completing a project from the target material during the workshop included: designs that were too difficult to complete and the need to make changes, working under time pressure, physical fatigue and the pace of work, the scale of the mosaic, the different stages of working with clay: gluing the elements, rolling, smoothing the surface.

Workshop activities as an essential part...

4. Have you had the opportunity to work with clay before?

60 answers

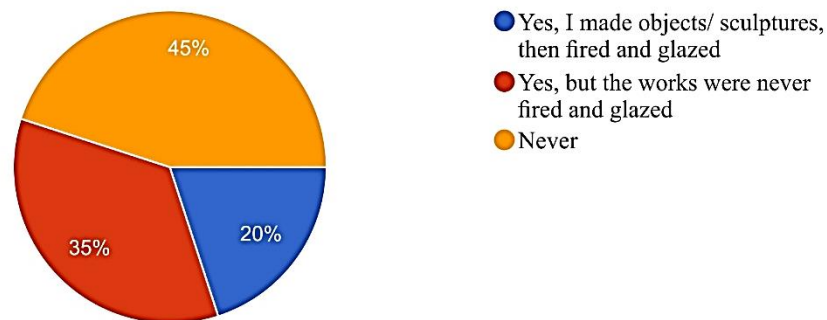


Figure 5. One of the results of the survey.

Source: prepared by Agnieszka Pluszczewicz-Fornal, graphic generated by Google Form.

23. Which design phase was the most difficult for you?

60 answers

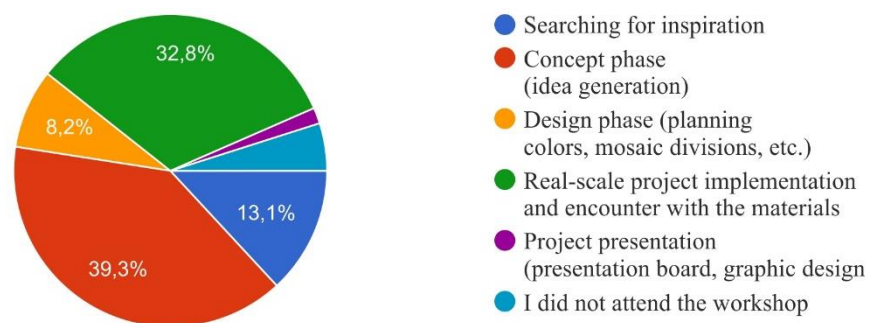


Figure 6. One of the results of the survey.

Source: prepared by Agnieszka Pluszczewicz-Fornal, graphic generated by Google Form.

As many as 67.3% of the students who participated in the workshop rated it very good and would be willing to participate in further similar activities, 30.8% rated it as a nice experience, one person described it as average. None of the people surveyed rated the workshop negatively.

The completed questionnaire survey showed that the conducted workshop and the implementation of the semester task had a great impact on the students' perception of the mosaic technique, increasing awareness and curiosity about both the technique and the material used for its implementation. As many as 66.7 per cent of the respondents estimated that the project had changed their view of the mosaic technique, 21.7 per cent of the students were unable to determine this, and only 11.7 per cent were not affected.

26. Has your perception of mosaic changed after attending the ceramics workshops and implementing the mosaic project?

60 answers

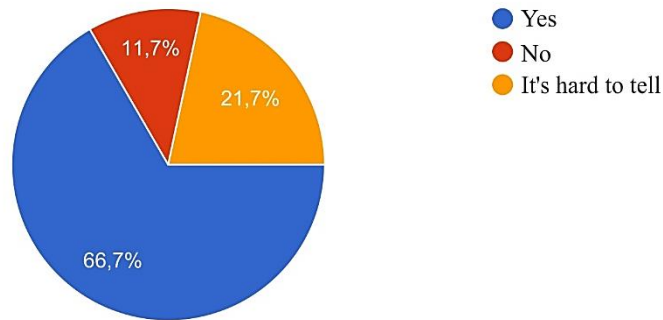


Figure 7. One of the results of the survey.

Source: prepared by Agnieszka Pluszczewicz-Fornal, graphic generated by Google Form.

In one of the open-ended questions, students were asked to define what mosaic was to them before the semester assignment. The responses showed that for the vast majority it was a somewhat forgotten art form associated with sacred and sepulchral architecture, not currently practised. Example responses: ‘little appreciated art form’, ‘nothing special’, ‘forgotten and unfashionable art’, ‘decoration’, ‘something unimportant and rather absent from the urban space’, ‘something very little known as I did not pay attention to it’. There were also results indicating a lack of familiarity with the technology: ‘I thought it was made of glass’, ‘I could not imagine how difficult it is to compose’, ‘it decorates walls or given elements, mainly in the bathroom’, ‘all my life I have been convinced that mosaic is made of glass , and I came across a new way of using clay in mosaic, which surprised me very much’, ‘not a very nice decoration for churches, now I see how much work it takes to make such works’, ‘I did not expect how long it could take to create’, ‘an old technique, I thought it was glass’. The single answers given testify to an earlier curiosity about the mosaic technique: ‘an interesting work I wanted to try’, ‘creating a mosaic was something I had always wanted to do, so it was a dream’ and surprise at the semester topic ‘I did not expect such an assignment within the class’. The students were then asked in an open-ended question how their perception of the mosaic technique had changed, the answers can be divided into groups: increased awareness, increased sensitivity, curiosity about the technique or the material. Examples of student statements:

- ‘I did not participate, however, I learned a lot during this semester. I understood the technique and will always look at it differently again’.
- ‘I now see it as something more thoughtful, not a collection of random elements as before’.
- ‘I have noticed that it is also an important architectural element with which you can achieve very interesting effects’.
- ‘I appreciate it a lot, I pay attention, I talk about it with my colleagues from the year’.

Workshop activities as an essential part...

- ‘I have more awareness, I value it more and I pay attention, I educate my relatives’.
- ‘I certainly now consider it a work of art that requires a lot of time, commitment and creativity. I appreciate the mosaic much more in terms of what process takes place during the creation. When I see a mosaic in a public place, I imagine how long and hard people worked on it’.
- ‘The only thing that has changed is that I've grown fond of the clay and I know I'll go there again’, she added.
- ‘I found out that a mosaic can not only appear as a decorative element, but also as a great work of art’.
- ‘I have started to appreciate the technique more and I think I will use it in some interior design project one day’.
- ‘It is a more extensive subject than I would have thought’.

28. How do you evaluate the ceramic workshops you completed at the Pottery Centre in Medynia Głogowska? (if applicable)

52 answers

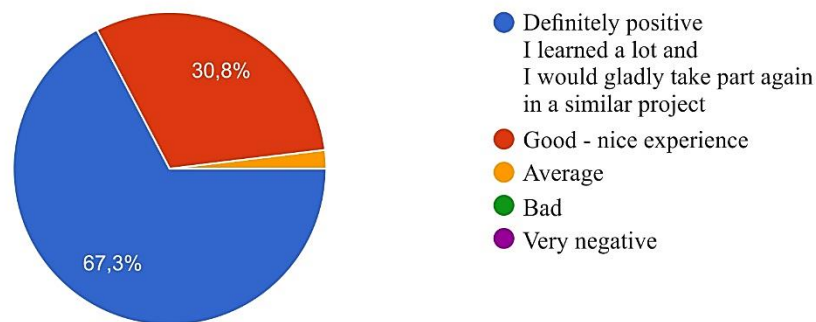


Figure 8. One of the results of the survey.

Source: prepared by Agnieszka Pluszczewicz-Fornal, graphic generated by Google Form.

9. Discussion

The activities presented in the article are innovative due to the unique combination of traditional craft techniques with modern design and teamwork methods. The didactic process was conducted holistically and culminated in the execution of the designed mosaic. The originality of the project lies in the integration of classical clay working methods into the curriculum of interior and architectural design students, allowing not only technical refinement of the workshop, but also the development of soft skills such as communication, adaptation to technological constraints and collaboration in a broad sense. There has been an increase in technical and artistic skills as a result of the workshop, allowing students to better understand

the design process from concept to completion. In addition, research has shown that the introduction of traditional ceramic techniques into students' design work enables them to explore new uses for the material in architecture. Taking into account the local and cultural context, especially the link to the Silesian region, allowed the projects to be enriched with elements of identity and tradition. And the implementation of the project itself allowed for the integration of the scientific community with the local craftsmen's centers.

Ceramic techniques are rarely used in teaching architecture, the article shows that ceramics, as part of craft traditions, can have an important role in shaping students' understanding and sensitivity to materials and design aesthetics, as well as increasing students' cultural awareness, which has not been widely explored.

The research confirmed the hypothesis that combining traditional ceramic techniques with architectural design in addition to the acquisition of artistic sensitivity supports the development of both technical and interpersonal skills in students. Lessons learned point to the need for further integration of craftsmanship with design education, which supports creativity and sensitivity to material and form. In practice, this project may inspire the introduction of similar courses in other design courses, allowing students to work with traditional techniques in modern architectural contexts. Discoveries can be used to develop educational programmes that emphasize local heritage and materials. Awareness of ceramic techniques can also contribute to a greater interest in sustainable design, including the use of local resources. In the next steps, it is planned to expand the programme to include additional classes in other traditional techniques to further enrich the educational programme. In-depth quantitative and qualitative analyses of the impact of knowledge of the techniques on students' design and interpersonal skills and the development of collaborations with local craft and art centers are also needed.

10. Conclusions

Analyzing the projects created by the students, one can notice a main division between figurative compositions and abstract compositions, flat and relief works were created.

The works included representations of:

- buildings or fragments of architecture characteristic of the city of Gliwice;
- buildings of the Silesian University of Technology and elements characteristic of the building, e.g. (Faculty of Architecture) and urban layouts;
- the logo of the Silesian University of Technology and logos of individual faculties;
- selected architectural elements and details: rhythms, textures, divisions applied in a more synthetic and general manner.

The colours of the works proposed by the students varied. Depending on the assumption, the works were both painterly and monochromatic.

Workshop activities as an essential part...

Technical challenges proved to be a significant problem, including adapting the designs to the size of the molded slabs. The pottery center determined the parameters of the mosaics being created, related to the technological capabilities of the kiln. This resulted in a revision of the prepared concepts and the need to adapt the designs to the size of the molded slabs, including their appropriate thickness, i.e. to raise the relief so that firing would be possible. During the work, a problem was noted related to mixing different types of clay, which caused cracking of slabs ready for firing. The intended result of the classes was achieved with a surplus - in addition to completing the task, the students' exceptional enthusiasm, the ability to conduct observations, conversations, and reach consensus were noted. The next, final planned stage of work will include assembly in the intended location.

After the workshops, as many as 98.3% of students believe that mosaic should find its place in contemporary architecture (68.3% definitely yes, 30% rather yes), while according to 55% of students, this technique is currently underestimated (26.7% definitely underestimated, 28.3% rather underestimated), and 31.7% of respondents are not convinced. As many as 86.7% of students believe that it is justified to return to the mosaic technique in contemporary architecture, and as examples of places where it could find its place they indicated: building facades, walls, interiors of public buildings, shopping centers, public bathrooms, sports halls, schools, bus stations, underground passages, Youth Culture Centers, staircases, restaurants, and many others.

31. Do you think it is now appropriate to return to the mosaic technique?

60 answers

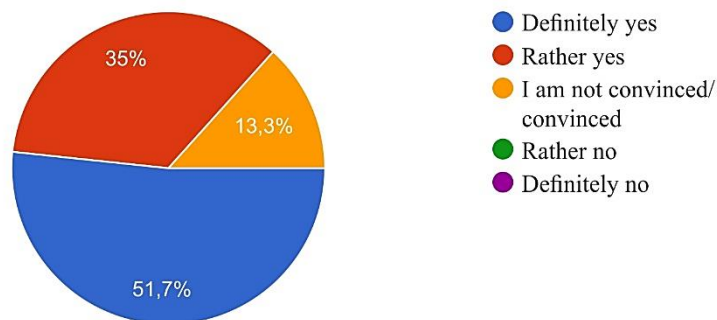


Figure 10. One of the results of the survey.

Source: prepared by Agnieszka Pluszczewicz-Fornal, graphic generated by Google Form.

11. Summary

The publication is a record of the design and implementation process important for the methodology in the didactic process. The aim of the undertaken activities was to gain a workshop and the opportunity to work in an interdisciplinary team during the implementation of mosaics. The empirical study conducted as part of this work confirms the significant impact of introducing innovative topics in the form of workshops on the development of creativity in students. The introduced topics stimulate imagination and promote a creative approach to solving design problems, which in turn increases the cognitive motivation of students. Introducing innovative topics in the form of workshops not only stimulates students' creativity, but also supports the development of a number of social and interpersonal skills. The workshop exercises presented in the article are an effective tool for learning communication, decision-making and cooperation between different participants of the design process, extremely important in the context of future professional work.

The undertaken design activities in the field of mosaics and their execution on a 1:1 scale were a new, inspiring educational experience for both young students and those conducting classes and workshops. Learning the technology and making the mosaic themselves allowed the young creators to understand the effort accompanying the creation of this type of work. As many as 66.7% of the surveyed students assessed that the undertaking changed their perspective on the mosaic technique. Thanks to the dedicated work, students were able to appreciate well-known mosaics, paying attention to their value in public space. This is confirmed by the results of the survey - 98.3% of students believe that mosaics should find their place in contemporary architecture. The presented educational activity made it possible to acquire humanistic skills, a social perspective on architecture and space in which a person should feel positive emotions. The visual side of the surroundings, the environment in which a person lives, is a very important element influencing their well-being. Cities in which we move easily thanks to clear urban layouts and architecture, we notice important places, cities with which we identify are the aspirations of every architect. Sensitivity to beauty, colours, mosaics and other results of artistic activities in urban space is of great importance in shaping the future creators of our environment.

Another important element in the didactic process was teamwork, establishing, selecting the concept and dividing responsibilities. The work required concentration and responsibility for its implementation, because a specific time was allocated for its completion. Workshop exercises allowed for the development of skills such as: communication with other creators, leaders and employees of the workshop center. They taught decision-making and cooperation between various entities involved in the design process. Students gained practical skills consisting of methods of creating a mosaic, and additionally acquired the ability to visualize their own design concepts and then present their projects and implementations. Teamwork,

learning the technology, implementing the idea and creating a mosaic on a 1:1 scale are the most important achievements of the entire didactic process. It can also be said that cooperation with various centers allowed for greater interaction of various creative environments, created the opportunity to acquire the ability to communicate with people from various creative and professional fields.

References

1. Balasiński, M., Maluga, L. (2018). Rysunek odręczny w kontekście przemian technologicznych. *Architectus*, 2(54), DOI:10.5277/arc180206.
2. Celadyn, W. (2016). Feedback in a method of architectural education. *World Trans. on Engng. and Technol. Educ.* 14, pp. 468-472.
3. Ceylan, S., Soygenis, S. (2022). Improving Architecture Students' Design Skills: A Studio Experience. *International Journal of Art & Design Education*, 41(4), DOI: 10.1111/jade.12401.
4. Jaszczuk, P. (2018). Zmiany roli przedmiotów plastycznych i metod ich nauczania w kontekście programu kształcenia architektów na Wydziale Architektury Politechniki Wrocławskiej. *Architectus* 2(54), pp. 33-48, DOI:10.5277/arc180204.
5. Kucharczyk-Brus, B., Zabawa-Krzywickowska, J. (2018). Rysunek odręczny w procesie kształcenia architektów wnętrz. *Architectus*, 2(54), DOI:10.5277/arc180203.
6. Makowska, B. (2019). Innovative methods in teaching improve the creativity of landscape architecture students, *World Transactions on Engineering and Technology Education. Cracow University of Technology*, 17(3), pp. 343-348.
7. Muszyńska, M. (2021). Technical and soft competencies in teaching architecture in the context of Industry 4.0. *World Transactions on Engineering and Technology Education*, 19(2), pp. 203-208.
8. Siomkajło, B., Łuczewska, D. (2018). Wstęp do modelowania przestrzeni – łączenie podstaw teorii kompozycji z pracą z tworzywem na Wydziale Architektury Politechniki Wrocławskiej. *Architectus*, 2(54), DOI:10.5277/arc180207.
9. Warshaw, J. (2007). *Praktyczny poradnik ceramika*. Warszawa: Arkady.
10. Wesołowski, P. (2022). Enhancing architectural engineering students' acquisition of artistic technical competences and soft skills. *Cogent Arts & Humanities*, 9, 1, 2043997, DOI: 10.1080/23311983.2022.2043997.
11. Zabawa-Krzywickowska, J., Groń, K. (2019). Architectural and artistic action meaning for public space in the city - creative teaching for students of architecture: Murals. ICERI Proceedings, [B.m.], IATED "Academy", pp. 2898-2906.

12. Zabawa-Krzyrkowska, J., Groń, K. (2022). Dydaktyka w praktyce. Teoria versus praktyka, działania w zakresie wystawiennictwa. *Builder Science*, vol. 305, no. 12, pp. 56-58, DOI: 10.5604/01.3001.0016.0936.
13. Żychowska, M.J. (2019). Teaching drawing to a new generation of engineers architects. *World Transactions on Engineering and Technology Education. Cracow University of Technology*, 17(1), pp. 60-65.