The impact of the Covid-19 pandemic on the organisation of architecture students' workshops and exhibitions

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ABSTRACT: The Covid-19 pandemic took everyone by surprise. To prevent the spread of the virus, changes had to be made in every sphere of life. In this article, the authors present a study on how this situation impacted the organisation of student workshops and exhibitions used to disseminate students' outcomes. The role of student workshops is to educate and facilitate students' development under the eye of experienced mentors. Intensive work in a strictly allotted time and a new creative environment have often led to workshop projects resulting in fully innovative solutions. Thus exhibitions of such projects have high value, both to the participant and visitors. The pandemic restrictions forced the workshops to be moved to the Internet. The authors, based on many years of experience and the results of a survey study, investigated the impact of these changes on the effectiveness of workshops and exhibitions. They analysed which solutions enhance the effectiveness, and hence could be used in a post-pandemic reality. The findings indicate that despite excellent on-line tools, real-life experiences and face-to-face methods remain the most effective solution in regard to workshops and exhibitions.

INTRODUCTION

Modern education is rapidly evolving in response to the changing demands of society and the development of technology [1]. The classical model with a teacher based at a faculty and students in the classroom has become questioned [2]. New educational technologies require new approaches to the organisation of space, and modern architecture should provide an adequate response to this request. In an age of high technology, the goal is to master the maximum amount of knowledge, especially including valuable information from experienced masters of their craft, as well as highly qualified specialists with great expertise in the profession [3][4]. Today, one can obtain new knowledge and unleash one's creativity at training events, such as workshops [5][6].

The key feature of a workshop is the full engagement of all participants. Theory is presented in the background and immediately applied in practice. This type of training inspires participants, allows them to believe in their own abilities and to continue self-improvement. A workshop cannot completely replace the standard mode of knowledge acquisition, but can give a significant boost and interest for both beginners and experienced professionals.

In substantive terms, a workshop can also be an element of well-established now, and widely-practised, project-based learning (PBL). In PBL, students must face a practical task instead of a theoretical exercise. To solve it, they have to make decisions, which ultimately leads to gaining numerous skills, such as communication, presentation, organisation, time management, research and inquiry, self-assessment and reflection, group participation and leadership, critical thinking skills [7][8]). This set of skills forms the basis of the profession for which they study and will practise.

Student workshops facilitate teaching and contribute to exercising the creative abilities of students under the eye of an experienced mentor. During workshops, intensive work in a strictly allotted time and often a new creative environment often lead to projects replete with entirely innovative solutions. The workshop outcome comes in the form of projects and prototypical 1:1 realisations that are then presented by students during exhibitions. Exhibitions thus constitute high value, both to workshop participants and other students who observe them.

WORKSHOPS AND EXHIBITIONS BEFORE THE PANDEMIC

An example of a cyclical workshop is the one organised by the Faculty of Architecture at Cracow University of Technology (FA-CUT), Kraków, Poland, and the Faculty of Architecture and Construction at *L.N. Gumilov* Eurasian National University (FAC-ENU) in Nur-Sultan, Kazakhstan, based on a bilateral agreement. In the years 2015-2019, there were three international students' workshops including the FA-CUT and FAC-ENU students.

All three workshops were held in the FAC-ENU, Astana, Kazakhstan. The first workshop was based on the theme: *Conceptual Landscape Project of the ENU Recreation Space in Astana,* and took place in September 2015. The second

workshop's theme was: *Designing multi-comfortable house Saint Gobain. Restoration of the Urban Environment of Madrid*, and was held in November 2016. The theme of the third workshop was: *Architectural collage. Transformation of styles in the New Architecture of Astana*, and it was held in 2019.

Public exhibitions were hosted after each workshop. On their opening days, workshop participants could present their projects. Heated discussions often took place and views were exchanged. A workshop was also planned for 2020, but had to be cancelled due to the pandemic restrictions. Instead, two rounds of competitions and on-line exhibitions were hosted on 25 May 2020 and 5 February 2021 on Teams and Zoom, with participants including students from Polish, Russian, Armenian and Kazakh universities. The competitions and their accompanying events - lectures, award ceremonies and the exhibitions - were hosted on-line [9].

WORKSHOPS AND EXHBITIONS DURING THE PANDEMIC

The pandemic forced the relocation of teaching from campuses to the Internet. All classes - be they design studios, laboratories, lectures, etc, have been hosted on-line for over a year. This transition forced in turn teachers to familiarise themselves with new technologies to enable teaching in a system resembling on-campus classes. The available technology include high-resolution webcams, high-speed Internet connections, graphical tablets, etc. Software that allows large and small groups of students to connect with teachers during lectures and design studio classes is continuously developing. A large number of on-line learning methods had already been tested before the pandemic, and numerous courses offered, for example, on Moodle or Edmodo platforms. According to some studies, they yield positive results for the students [10]. The situation is similar in the case of on-line lectures, as demonstrated by Hertzog in regard to the effectiveness and positive student assessment of video lectures [11].

Currently, design projects in the FA-CUT are consulted over the Internet in real time and do not differ much from on-campus classes. From a student's standpoint, the differences can nevertheless be significant [12]. A series of practices developed over the past year has started to bring in the desired results, and many of these solutions shall remain, even if the pre-pandemic mode of work can be restored. However, in a study on a hybrid teaching approach, the authors indicate face-to-face meetings as the preferred form of student workshops [13].

During the pandemic, almost all on-campus student project exhibitions at the FA-CUT had to be cancelled. This was especially detrimental, as exhibitions held in university halls, lecture halls and at affiliated galleries were an excellent supplementation of the teaching process and a summary of many months of work [14].

The fundamental objectives of such exhibitions are to:

- Showcase the general quality of student projects.
- Present the work scope of a given module to new classes.
- Demonstrate the work methods of the organiser.
- Inspire different cohorts of students to work on various planes (technical and construction solutions, urban design solutions, aesthetic features, graphical standards, etc).
- Allow students through exhibitions to choose the design classes they wish to participate in.
- Disseminate knowledge about new technologies, current trends or events [15].

The exhibitions had to be moved to the Internet, and several dozen of them have been hosted by the FA-CUT during the Covid-19 pandemic. They became easier to access. However, as it turned out, this did not mean that they reached a wider audience.

METHODOLOGY

This article presents an attempt at comparing two methods of presenting student projects – in real life and on-line. A survey was carried out among FA-CUT employees and students, and a total of 398 persons responded. Microsoft Forms was used to carry out the survey because the FA-CUT uses Microsoft Teams to host classes. The main goal of the survey was to assess the amount of interest in student project exhibitions in their real-life and on-line forms and whether the change in the presentation form impacted on the interest in the exhibitions and their reception. The authors also collected information about the strengths and weaknesses of both alternatives.

SURVEY RESULTS AND ANALYSIS

The results presented in Table 1 were analysed from the standpoint of three groups:

- Group 1 (G1) - first-year Architecture and Landscape Architecture students. Isolating this group is important as students in their first year of study at the time of this article's writing (May 2021) had very limited options to personally participate in real-life classes and exhibitions.
- Group 2 (G2) - university teaching and teaching-and-research staff who delivered classes as a part of Architecture and Landscape Architecture courses.

- Group 3 (G3) - students of all years and university staff who taught classes in Architecture and Landscape Architecture courses.

Table 1: Survey questions and the corresponding responses in numerical (number of respondents) and percentage values.

No.	Questions	Results (numerical and percentage values					
		Students first cycle, year 1 (G1)		Employees (G2)		Students + employees (G3)	
		No.	%	No.	%	No.	%
Q1	I am:						
	A1.1 A university employee	0	-	14	100%	14	4%
	A1.2 A university student	182	100%	0	-	384	96%
Q2	Did you attend student project exhibitions held at a gallery, on campus, outdoors before the Covid-19 pandemic? If so, how often did you do so?						
	A2.1 I did not	158	87%	4	28%	222	55%
	A2.2 I did, sporadically	20	11%	7	50%	150	37%
	A2.3 I did, often	4	2%	3	22%	28	7%
	A2.4 I did, very often	0	-	0	-	3	1%
Q3	Did you attend on-line student project exhibitions during the Covid-19 pandemic? If so, how often did you do so?						
	A3.1 I did not	136	75%	11	79%	276	68%
	A3.2 I did, sporadically	38	21%	3	21%	108	27%
	A3.3 I did, often	6	3%	0	-	14	4%
	A3.4 I did, very often	2	1%	0	-	5	1%
Q4	What are the greatest strengths of student project exhibitions organised at a gallery, on campus, outdoors?						
	A4.1 Direct contact with the projects (prints, models)	150	37%	8	30%	298	36%
	A4.2 Direct contact with the authors	78	19%	6	22%	144	17%
	A4.3 Opportunity to meet others interested in the same subject and exchange views	111	27%	10	37%	239	28%
	A4.4 Opportunity to connect with people *from the street* in the case of open-air exhibitions	68	17%	3	11%	149	18%
	A4.5 Others	1	-	0	-	6	1%
Q5	What are the major downsides of student project exhibitions organised at a gallery, on campus, outdoors?						
	A5.1 Cost (renting a space, printing, etc)	119	37%	8	27%	282	40%
	A5.2 Time-consuming preparation (framing, transport, hanging)	92	28%	9	31%	201	29%
	A5.3 Limited exhibition time	68	21%	7	24%	115	16%
	A5.4 Limited exhibition space	45	14%	5	18%	99	14%
	A5.5 Others	1	-	0	-	8	1%
Q6	What are the greatest strengths of student project exhibitions organised on-line?						
	A6.1 Ability to participate in the event regardless of location	162	39%	11	33%	348	39%
	A6.2 Low cost (no need to rent a space, print, transport and frame the projects)	105	26%	9	27%	255	28%
	A6.3 Unlimited exhibition time	74	18%	8	24%	152	17%
	A6.4 No limits in the number of displayed projects	68	17%	5	15%	144	16%
	A6.5 Others	0	-	0	-	2	-
Q7	What are the major downsides of student project exhibitions organised on-line?						
	A7.1 Lack of opportunity to enter in discussions with other people who view the exhibitions at the same time - no sharing of views	99	21%	10	28%	211	22%
	A7.2 No direct contact with the authors	80	17%	6	17%	156	16%
	A7.3 Viewing the projects on a small screen - that of a laptop or smartphone (compared to large prints)	122	26%	9	26%	261	27%
	A7.4 No physical models	102	22%	7	20%	187	19%

	A7.5 Internet access is required to participate	41	9%	1	3%	86	9%
	A7.6 Large number of exhibitions at the same time	26	5%	2	6%	58	6%
	A7.7 Others	1	-	0	-	5	1%
Q8	Which form of presenting student projects would you prefer (after the end of the Covid-19 pandemic):						
	A8.1 At a gallery, on campus, outdoors	41	23%	4	28%	97	24%
	A8.2 On-line	16	9%	1	7%	52	13%
	A8.3 The projects should be presented both on-line and in real life	125	68%	9	65%	254	63%

Question Q1. A total of 398 persons responded to the survey. Only 14 university employees participated (G2). Considering this relatively small number, the results of this group needed to be approached with caution. The number of student respondents was 384. Among them, 182 were first-year students (G1) who already began attending classes at the FA-CUT during the pandemic.

Question Q2. It turned out that G1 respondents participated in gallery-based, on-campus and outdoor exhibitions, but in small numbers - 11% did so sporadically and 2% often. Exhibitions attracted significant interest among G2 respondents - 50% participated sporadically and 22% participated often. This means that 72% (a clear majority) of university staff respondents participated in these events. The matter presented itself differently in the case of G3, where over half of the respondents - 55% - declared no attendance, 37% declared sporadic attendance and 7% declared they participated often.

Question Q3. The changes caused by the pandemic (moving to on-line teaching) significantly affected exhibition attendance in all groups. In the case of G1, the percentage of those who participated increased almost twofold, from 13% (results for question 2) to 25%. In G2, this percentage fell sharply - from 72% to 21% (Figure 1, red dashed frame). Up to 79% of respondents from this group declared no attendance in on-line exhibitions during the pandemic. In G3, the percentage of respondents who participated in exhibitions also fell - from 45% before the pandemic (with the majority, 37%, indicating sporadic attendance) to 32% during the pandemic (27% declaring sporadic attendance).

The significant increase in G1's exhibition attendance could have stemmed from the fact that, prior to the pandemic, these respondents were not university students and had no access to information about exhibitions to the same degree as the respondents from earlier years had. It is difficult to identify the possible reasons for the drop in exhibition attendance in G2. The possible causes include poorly targeted promotion, deficient information flow between university departments and frequent cases of exhibitions overlapping with regular classes, meetings and training courses. The results for G3 provided the most complete picture. A general drop was observed. The number of exhibition attendees dropped by 13%. The causes behind this can be found in answers to later questions.

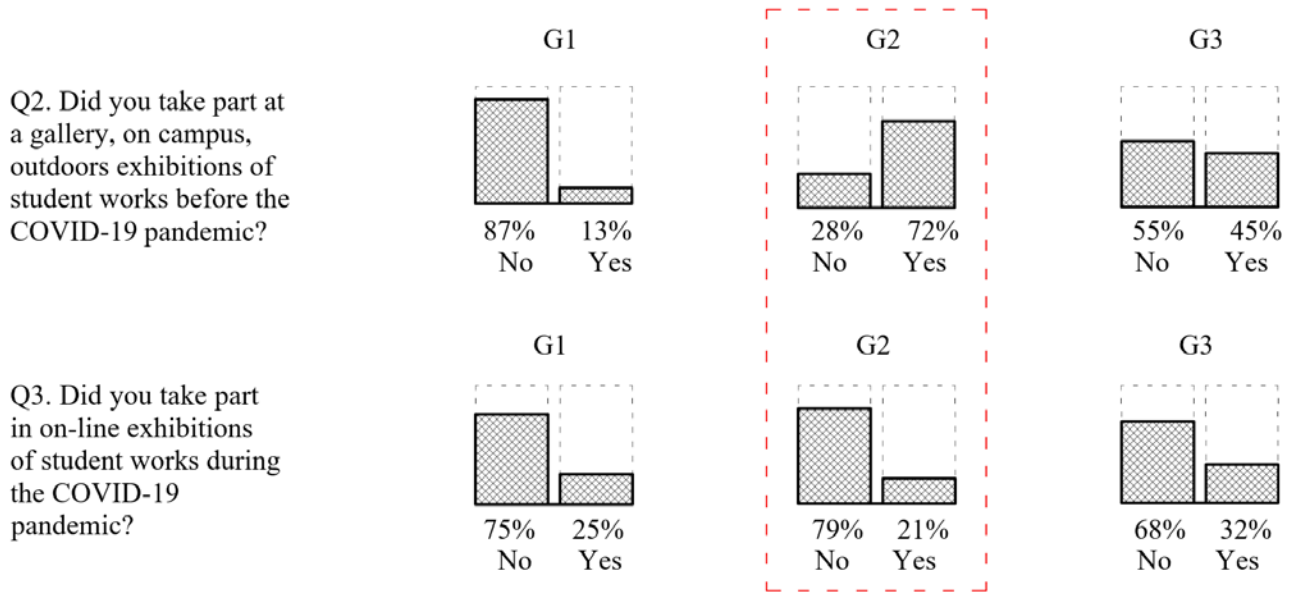

Figure 1: Comparisons between answers to questions Q1 and Q3 for the three groups.

In questions Q4-Q7, it was possible to mark one or more of the provided answers or to provide one's own.

Question Q4. All of the surveyed groups answered this question very similarly. The most important strengths of real-life exhibitions listed by the respondents included direct contact with the projects (A4.1) and the possibility of meeting other people interested in the subject, which offered opportunities for sharing views, discussions and making acquaintances (A4.3). When opting for answer A4.5, the respondents listed strengths, such as: *the ability to visit the exhibition with friends*, which partially corresponds with answer A4.3 and *visual reception is easier, a large, clear sheet*

instead of a small screen, which corresponds with answer A.4.1. This highlighted the importance of the social aspect to respondents and the ability to directly observe the projects in person. These are the most crucial conditions that cannot be reproduced in on-line exhibitions.

Question Q5. As indicated by respondents from groups G1 and G3, one of the greatest downsides of gallery-based, on campus and outdoor student project exhibitions were the high costs of preparing such events (A.5.1). Respondents from group G2 saw answer A5.2 as the most essential; namely, the time-consuming preparations. This is probably because employees are typically responsible for project selection, printing, framing, hanging and other things that need to be done during preparation. Answers A5.3 and A5.4 (limited exhibition time and limited exhibition space) were found to be insignificant, with the least amount of points. However, these circumstances do not apply to on-line exhibitions.

Question Q6. In the case of the greatest strengths of student project exhibitions organised on-line, all of the groups presented almost identical opinions. The highest-rated elements were: the potential to participate in the event regardless of one's location (A6.1) and low costs (A6.2). The remaining answers - unlimited exhibition time (A6.3) and unlimited exhibition space (A6.4) were reported as less significant.

Question Q7. In the case of the downsides of on-line student project exhibitions, the situation was slightly different. As many as four questions (A7.1-A7.4) received a similar amount of points, which means that all of the downsides were equally significant. In the case of real-life exhibitions, one answer (A5.1) received a much larger amount of points, with the others apparently deemed less essential. In the answers A7.7 added by respondents, there were opinions such as: *I see no downsides, apart from the inability to use it as a social activity*. This supports earlier observations that the lack of social aspects in the case of on-line exhibitions was particularly noticeable to respondents.

The following results were obtained after counting and comparing the strengths and downsides of real-life and on-line exhibitions:

Q4 - strengths of real-life exhibitions - 836 points.
Q5 - downsides of real-life exhibitions - 705 points.
Q6 - strengths of on-line exhibitions - 901 points.
Q7 - downsides of on-line exhibitions - 964 points.

In the case of real-life exhibitions, the respondents assigned more points to strengths than to downsides. In the case of on-line exhibitions, more points were assigned to downsides. This comparison clearly showed which form of presentation was more attractive to respondents.

Question Q8. Once again the results in all groups were very similar. The largest number of respondents expressed a desire for exhibitions to be hosted both in real-life and on-line simultaneously after the pandemic (A8.3) - 63-68%. This appears an understandable, rational approach. However, it is notable that although the vast majority of respondents was made up of students (96%), i.e. young people who are highly skilled in operating modern technologies, answer A8.1 came second - 23-28%. This means that around 95 respondents opted solely for real-life exhibitions. The least amount of respondents expressed interest in solely on-line exhibitions. This corresponds to earlier conclusions that on-line exhibitions had a high number of critical downsides and cannot replace real-life exhibitions.

IMPACT OF RESEARCH RESULTS

Staff of the Chair of Architectural and Construction Design of the FA-CUT are currently co-organising workshops for students as part of an Erasmus+ grant entitled High-Performance Building Solutions in Wood (HiBiWood) [16]. Universities from Latvia, Austria, Finland and Lithuania also take part in this project. All the partners have unequivocally stated that the workshop and the post-workshop exhibition should be conducted in person to produce the best educational outcome, which concurs with this study's findings. However, as the epidemiological situation in Europe remains uncertain, the following alternatives are currently explored:

- Real-life scenario - all participants personally attend the workshop.
- Hybrid scenario - participants from countries that allow free movement of persons, shall personally attend the workshop, with others attending on-line.
- Fully on-line scenario - all participants shall attend the workshop remotely.
- Postponing the workshop until the pandemic ends.

In the latter case, rescheduling the workshop may be problematic due to the project's tight schedule and little room available to move deadlines due to funding arrangements. The exhibitions that are to present student workshop projects can be organised independently at each participating university. They do not have to be hosted immediately after the workshop's conclusion. Depending on the situation, if universities in a given country remain open, one can organise an on-site exhibition. In alignment with the findings of this study, the projects shall also be presented on-line, independently of real-life exhibitions.

CONCLUSIONS

The Covid-19 pandemic forced universities to almost instantaneously alter the education process and to introduce new technologies and remote learning. The already planned workshops, which are an essential element of architectural education, had to be cancelled or postponed. Exhibitions moved into the digital sphere. Hence, it is now possible to participate in virtual openings, watch recordings and browse student project galleries without limitations. However, the solution that initially appeared to be an ideal substitute turned out to have numerous downsides, also indicated in this study.

The survey results outlined in this article, clearly point to two crucial aspects of student project exhibitions, which are lacking in their on-line version. The first is the social aspect. An exhibition is an event that is often attended with a group of acquaintances or with the intent to meet new people interested in the subject of the exhibition. This facilitates exchanging views and opinions. It is also an active form of spending one's free time. The second aspect is the direct contact with the projects on display. Real-life exhibitions provide a much better and fuller contact with a work than on-line exhibitions. Direct observation can reveal certain parts of the content that go unnoticed when one browses successive images on a computer screen.

The downsides of real-life exhibitions not present in on-line exhibitions were rated as insignificant. Meanwhile, the downsides of on-line exhibitions proved important. Here, respondents specifically noted that viewing projects on a small screen is detrimental to gaining a complete insight into the work. Moreover, it is not possible to present physical models in on-line events, and contact with the authors is also hindered, as is contact with other exhibition attendees (chat only). The high number of negative opinions about on-line exhibitions was reflected in the falling number of attendees. The possibility of on-line presentations should therefore be treated as a supplement, as an addition to real-life exhibitions. At present, the available technological solutions cannot replace traditional architecture student project presentations at galleries or on campus.

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