https://doi.org/10.4467/27204812ZG.23.012.18713

https://orcid.org/0000-0002-0055-6717
Katarzyna Machała
Jagiellońskie Centrum Językowe
Uniwersytet Jagielloński, Kraków

THE THIRD PEDAGOGUE: SPACE IN HIGHER EDUCATION

Space is often taken for granted when thinking about the learning and teaching process: it is the building, or the classroom, or even the virtual space used during online classes. Its significance is overlooked, as it is usually assumed that as long as there are enough chairs with tables, working equipment and sufficient light, the rest of the learning and teaching process is up to the students and the teacher (Temple, 2008). However, this is not the case. Space is beginning to be considered as "the third pedagogue" (Ninnemann, 2018), and its significance is increasingly appreciated by both researchers and participants in the learning and teaching (L&T) process.

The Erasmus+ project Learning and Teaching Space in Higher Education (LTSHE) emerged as a result of such considerations. It was a Strategic Partnership for Higher Education within the Erasmus+ Program under the key action Cooperation for Innovation and the Exchange of Good Practices. It lasted from December 1, 2019 to November 30, 2022, initially gathering 7 European higher education institutions and one evaluation agency: Birmingham City University from the United Kingdom (BCU), the Jagiellonian University from Poland (JU), Universidade de Aveiro from Portugal (UA), Universidad Publica de Navarra (UPNA), Wirtschafts Universitat from Austria (WU), Kolegji AAB from Kosovo (AAB), Universita degli Studi di Milano from Italy (UNIMI), and Evaluationsagentur Baden-Wurttemberg from Germany (evalag). The BCU team was the project leader and coordinator, and the work was divided into four stages, with four Intellectual Outputs (IO) to be produced by all the partners. In the course of the project, though, the Italian team decided to withdraw after the first stage, thus leaving six universities and evalag to complete it.

The project's aim was to develop a set of comprehensive design principles that institutions can draw on to inform the development of new L&T spaces. The overarching questions that started the considerations were simple: how can space influence the education process? Can it contribute to teacher and student

performance and satisfaction? We devised a working hypothesis that L&T processes are supported, activated, and enabled by space (understood as physical, virtual or hybrid), and the design of space affects motivation, behavior, and processes, which directly influences learning outcomes.

Step 1: Review of scholarship, policy, and practice

The first stage consisted in analyzing all the available documents on the legislation, policy, and strategy of the design of L&T spaces in higher education within the partner countries. All the teams were supposed to look at the national assessment and accreditation standards and guidelines, as well as the relevant subject literature and their institutions' strategic documents. It was supposed to be background for all further discussions, and the first indicator of where the empirical research may lead.

However, it soon became evident that there is no legislation or general standards to consider in any of the countries. The design and organization of space was not perceived as a key factor for the success of the learning and teaching process. For example, Polish national regulations and policies as expressed in the Law on Higher Education, the Executive Order on Study Programs and documents of the Ministry of Science and Higher Education as well as those of the Polish Accreditation Committee are vague in defining how L&T space should be arranged and organized. The most common term used to describe any desirable L&T space is "modern" without any clarification, however, as to what "modern" means in this context. The lack of academic interest in the issue was similar: in the wake of the higher education reform, numerous conferences were organized, none of which addressed the problem of L&T space. The situation in other countries was analogous, with the debate on the issue only beginning and no comprehensive reports or legislation yet ready (Leiber et al., 2021).

Therefore, although IO1 reports included some literature review, they focused mostly on the practice, i.e., the description of the existing physical and virtual spaces at the partner universities. Such a direct approach was also a result of the COVID-19 lockdown, which made travel impossible. For well over a year, all the partner meetings were held online, and in order to be able to talk about the issues, every team decided to paint a comprehensive picture of their institution with words and numerous photos. Four levels of space were considered: (1) the relation of city-university; (2) the campus; (3) the buildings, and (4) L&T spaces.

The reports were compiled in 2020 and are published on the evalag website (https://www.evalag.de/en/research/ltshe/policy-and-practice-of-lt-spaces [accessed: 29 June 2022]).

Step 2: Case study of practice

The second stage of the project was still limited by the pandemic, with traveling still impossible and face-to-face contact severely restricted. For this reason, it was again focused on each partner's own institution, as it consisted in a series of semi-structured interviews and focus groups with seven groups of stakeholders: rectorship members, unit directors, teaching staff, students, quality management staff, non-teaching staff (administration, maintenance) and architects. The interviews concerned the role of L&T spaces for L&T innovation, the existent spaces, the required spaces, and the digital structures for online, hybrid and blended learning and teaching. Depending on the stakeholder, various levels of space were discussed (city-university, the campus, the buildings, the classrooms and the common spaces). In the case of the Polish team, the interviews tended to gravitate towards the micro scale of the classrooms and the common areas, with many respondents highlighting the problems that they noticed there, such as the lack of seats in the corridors and hallways, or the insufficient number of electric outlets that could be used by students.

All the IO2 reports were compiled in 2022 and are available on the evalag website (https://www.evalag.de/en/research/ltshe/experience-case-studies-of-lt-spaces [accessed: 29 June 2022]).

Step 3: Study visits

With most of the COVID restrictions withdrawn in 2022, site visits became possible when the LTSHE project was drawing to a close. Hence, only three such meetings were planned (UA in Aveiro, AAB in Pristina, and WU in Vienna), and the meeting of all the partners in Birmingham that inaugurated the project in February 2020 was also categorized as a site visit to be reported on. The visits were structured along the four lines, with clear guidelines on what to focus on when preparing the IO3 report:

1. city-university: university as a catalyst for development, heritage management, landmark buildings, gates to the city, engagement with the wider community;
2. campus: open space, landscape, direction, integration;
3. buildings: specialized spaces, shared spaces, services;
4. L&T spaces: impact on learning styles, social learning space, virtual spaces.

The reports were compiled by the host-university after each visit and they are available on the evalag website (https://www.evalag.de/en/research/ltshe/reports-of-site-visits-of-lt-spaces [accessed: 29 June 2022]).

Step 4: Guidelines of practice

The principles and guidelines for design, implementation, and use of L&T spaces in higher education were compiled on the basis of all the previous reports, as well as the final strategic SWOT analyses done by all the partners, and the scholarly literature on the subject that had been published since the beginning of the project.

On all four levels of consideration, emphasized was the need to develop a strategy with a coherent mission statement. It was also highlighted that an institutional discourse on L&T spaces must be implemented or intensified in order to start or keep the development and the enhancement of the spaces. Seeing that space is the "third pedagogue," operating on a par with students and teachers, its design and implementation should be given priority and it should be perceived as a strategic core area.

Securing stakeholder participation in the design and development process seems to be the way forward. Confronting the architect's or the investor's vision with the needs and expectations of the people who are actually going to use the space may lead to designing L&T spaces that will best meet the pedagogical requirements of all the groups involved. Such a process was implemented when planning the new building of the Faculty of Chemistry at JU. As opposed to the buildings previously constructed at the new campus, representatives of teachers and students were invited to discuss the shape of this one at the design stage, which allowed them to contribute ideas that were actually considered and that made the new building much more functional for all the stakeholders.

Financing the design, implementation and then maintenance of L&T spaces could become a serious obstacle in the development of new ones, therefore activating various forms of funding is advised, including state and private firm funding, as well as encouraging philanthropy. For example, the Faculty of Electronics and Telecommunications in Aveiro successfully cooperates with telecommunication companies that renovate classrooms free of charge, following the university's guidelines in their design, but can use the spaces for 1–2 days a month in return (Figure 1). So far, there are two such spaces: Wavecom, traditional in its design, and Ubiwhere, offering various L&T spaces inside one classroom: a large conference table, individual seats overlooking the garden, as well as a comfortable sofa. In both cases, the companies used their colors in the redesign, thus making the classroom similar to an office or a common space in their headquarters. It has been assumed that once students get used to such interiors, they will consider applying for a job in one of these companies after graduating.

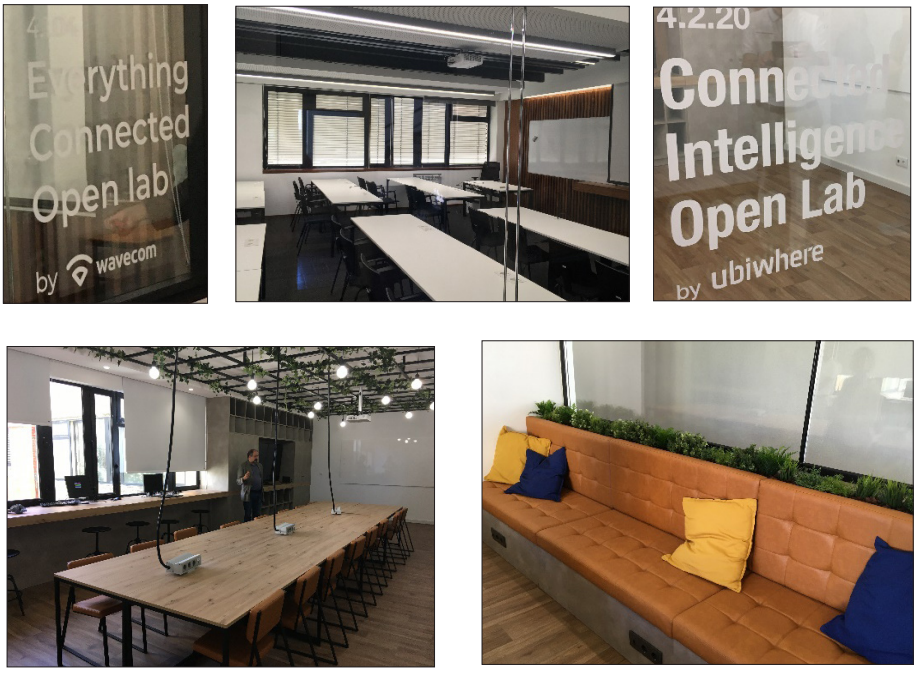

Figure 1. Cooperation with external stakeholders in space design
Source: own photos.

Communication should be a key function of campus spaces. Informal learning spaces should be provided, and they ought to be linked with formal ones. In addition, it is advised that they are accessible as much as possible to a broad public, thus connecting the university with the city. Such spaces can be found at all the universities participating in the LTSHE project, but what particularly stands out are the outdoor spaces, arranged in a meaningful way that are both interesting and instructive for the general public (Figure 2). The selection and arrangement of plants may be significant, as is the case of JU, where the promenade along the Faculty of Geography (close to the Faculty of Biology, too) is lined with bee-attracting plants, with special insect houses installed, showing how they can be taken care of in a city. The WU buildings are surrounded with various plants, all of them carefully described in German and in English. BCU had their outdoor space arranged differently – there is a scientific playground set up, fit for all ages, where people can experiment and thus see how the laws of physics work. Similarly, the Confucius Institute at JU has a Japanese/Asian-style garden laid out in front of it, which is both instructive and pleasant on the eye. Finally, one of the walls of the Faculty of Pedagogy of UA is covered with a work of art by a local artist, Ze Penicheiro, who reinterpreted the traditional use of the azulejos by giving them a modern, abstract look. This ceramic mural was created to celebrate the

30th anniversary of the University of Aveiro, and it has soon become one of the city's landmarks.

Figure 2. Outdoor spaces communicating values

Source: own photos.

Implementing such a communicative campus is beneficial both for the city and the university. The university opens for the public, inviting them in, but on the other hand, the city redevelops and regenerates disused areas in the vicinity to make them attractive for students and inhabitants alike. Many campuses (such as WU, Figure 3) open the doors of their cafes and restaurants and welcome anyone, which makes the place attractive for locals and tourists. Some universities offer services attractive for the general public. For example, AAB has their own TV studio that broadcasts news and morning shows, quite popular in Kosovo even though they are prepared by students who are only in the process of learning the secrets of this trade. The opposite development along the city-university axis is noticeable, too, for instance in Krakow, where the city invested in the regeneration of Zakrzówek lake and its surroundings, thus making it an appealing and safe place for everyone, including the campus students across the road.

Figure 3. Examples of city-university cooperation

Source: own photos.

Sustainability should be one of the key considerations when talking about the modern design of a university. Both the individual buildings and the campus as a whole should be 'green', i.e., climate-friendly and enhancing the well-being of its users (Figure 4). From the public transport connections available, through bicycle parking spaces and garages, to the design of the promenades that would encourage one to walk to and from the university, the campus ought to promote ecological solutions. In addition, it is recommended that the buildings be equipped with sustainable energy sources such as solar panels and/or geothermal energy, and that they have heat recovery installed e.g., in the data center. The green spaces surrounding the buildings and filling the campus not only are ecological, but they also contribute to the well-being of students, employees, and visitors to the area. Hence, the windows should overlook natural landscapes as much as possible, as is the case at WU and UA, where the windows look like paintings. The interior spaces could also have green corners arranged, as is the case of the main hall in AAB. JU is also beautifully situated, and the arranged flowerbeds and winding paths encourage everyone to spend their breaks outdoors, enjoying nature.

Figure 4. Examples of green spaces on the campus
Source: own photos.

Accessibility is another important consideration when designing a campus. Facilities for those with special needs such as Braille descriptions, a convex track along the corridors, or wheelchair spaces in lecture halls are taken for granted (Figure 5). What is also recommended, though, is implementing solutions for those who might feel excluded for a different reason, for example for foreign students who do not speak the language of the receiving country and who might have difficulty finding their way around if all the signs are written only in the host language. Thus, clear, and simple signs are advised, both outside and inside the buildings. An interesting solution is to be found at WU, where large screens were installed opposite the entrance, above the reception desk, clearly indicating the hours and the exact locations of all the lectures and classes held in the building at that moment.

Figure 5. Various solutions to improve accessibility

Source: own photos.

University should promote learning, and it should welcome students willing to spend their free time there. Students are more likely to stay between or after classes if they can find comfortable seats with good lighting, with a power outlet, and with access to the internet. Hence, the next recommendation is to implement a mix of different learning areas that could accommodate people who want to study alone or in a group, quietly or not. There need to be quiet zones for one, two or more people, larger tables for collaborative learning, bookable project rooms, and some seats adjacent to classrooms and lecture halls. Many such spaces are to be found at BCU and WU (Figure 6). Other universities participating in the project are also developing such areas, although fire regulations seem to be a major obstacle in all these places.

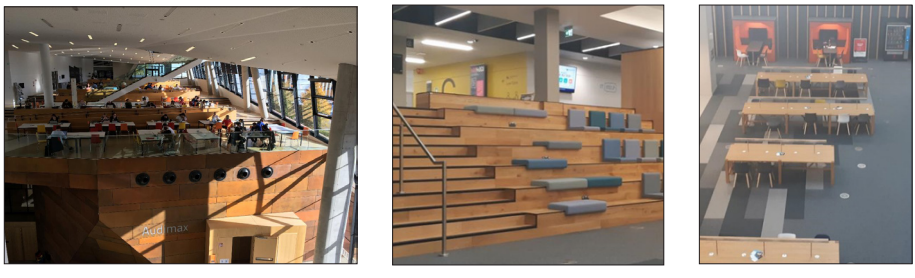

Figure 6. Common spaces promoting learning

Source: own photos.

L&T spaces should be designed in such a way that would allow flexibility in the case of demographic changes or unforeseen circumstances such as another pandemic. Hence, digital infrastructure should be implemented that would enable physical, digital and hybrid classes without the need to reschedule or rearrange something. After the long lockdown caused by the COVID-19 pandemic all HEIs have digital solutions that have been tested and proven to be efficient for the online classes. Hybrid learning and teaching still remains rather a challenge, though, as it requires specialist equipment such as tracking cameras, sensitive microphones

and intuitive software to be installed in the physical classroom. Such solutions can be found at WU in a number of classrooms, and at UA in the space called SALT (Space for Active Learning and Teaching, Figure 7). Both places offer flexibility and modularity. In addition, SALT is a perfect space for innovative learning and teaching, as it provides a variety of areas for groups in different arrangements and different sizes. There are both more and less formal spaces, therefore the room can cater for the needs of different fields and subjects (Carlos et al., 2022).

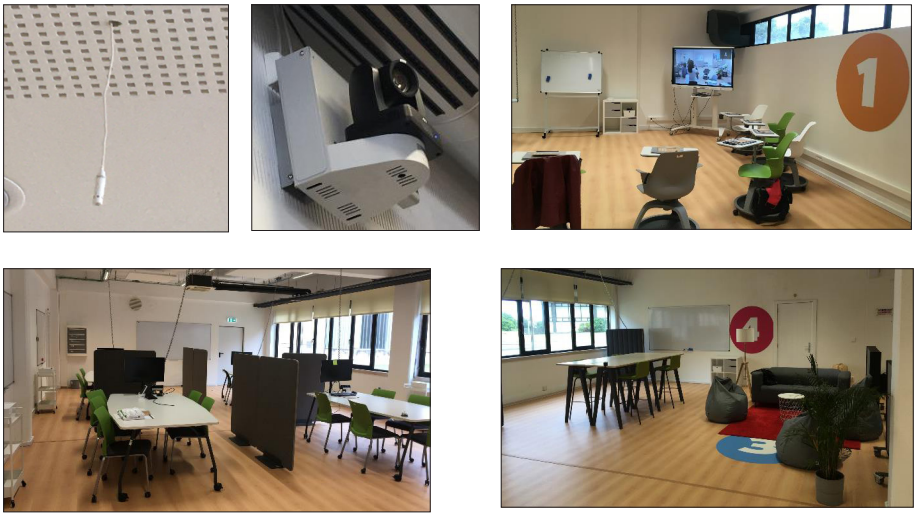

Figure 7. Spaces for hybrid and blended L&T

Source: own photos.

Expanding and perfecting digital structures is also essential when planning the education of the future. WU is a leader in this respect. The FLEX (Future Learning Experience) center developed there provides infrastructure and equipment for experimenting with immersive teaching and learning technologies. It allows staff to produce high-quality audiovisual media without advanced technical knowledge, but it also provides technical support in the process if necessary. Online learning and teaching environment is an accurate reflection of the physical spaces at WU, which makes it more realistic for those students who cannot attend regular classes but who can still feel a part of the university community.

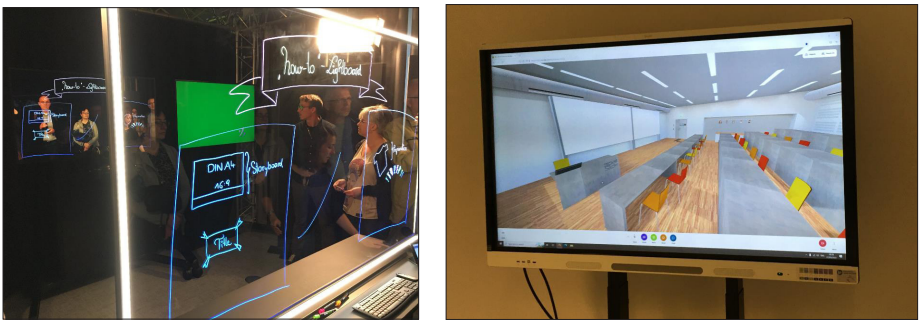

Figure 8. Virtual spaces for online L&T

Source: own photos.

The final overarching principle to consider when designing L&T spaces is to avoid an overemphasis of form, aesthetics and architecture over educational design and practicability. The design must be balanced with usefulness, with the space's functionality the priority. Even in the case of awe-inspiring landmark buildings created by world-famous architects, as was the case with the new WU campus (Figure 9), practical considerations come first, and the beautiful spaces are first and foremost conducive to more efficient learning and teaching.

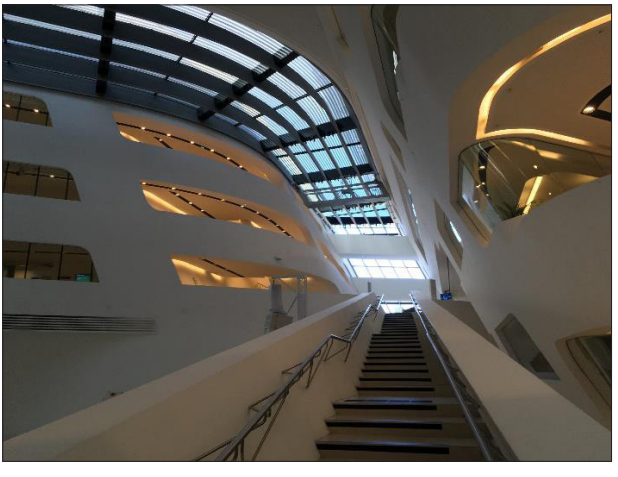

Figure 9. Creating landmark architecture

Source: own photos.

Concluding, no single university is perfect, each has its flaws. Projects like LTSHE are an excellent opportunity to observe how others are managing to solve the problems we struggle with, and to offer our own ideas: ones that could be successfully implemented elsewhere. The university of the future is slowly emerging

from such considerations: open, flexible, and accessible, welcoming everyone within its walls or reaching out to them in times of online classes. Implementing small but meaningful changes could be cost-efficient, but it is possible only if someone starts the discussion and indicates the areas that could be improved employing innovative ideas and open approaches.

Bibliography

Birmingham City University, https://www.bcu.ac.uk/ [accessed: 29 June 2022].

Carlos, V., Bruckmann, S., Rosa, M.J. (2022). Reflecting on Next Generation Learning and Teaching Spaces – The Voice of the Academic Community. In: *Proceedings EDULEARN22 – 14th International Conference on Education, and New Learning Technologies, Palma, Spain, 4–6 July 2022*, Palma, Spain, 769–777.

Kolegji AAB, https://aab-edu.net/en/ [accessed: 29 June 2022].

Leiber, T., Carlos, V., Bruckmann, S., Rosa, M.J. (2021). Principles of Design and Implementation of Learning and Teaching Spaces: Lessons learnt from German and Portuguese Higher Education. In: *Proceedings ICERI2021 – 14th Annual International Conference of Education, Research and Innovation, online event, Seville, Spain, 8–10 November 2021*, 111–120.

Ninnemann, K. (2018). *Innovationsprozesse und Potentiale der Lernraumgestaltung an Hochschulen. Die Bedeutung des dritten Pädagogen bei der Umsetzung des Shift from Teaching to Learning*. Münster.

LTSHE Intellectual Output 1 – partner reports (2020). https://www.evalag.de/en/research/ltshe/policy-and-practice-of-lt-spaces [accessed: 29 June 2022].

LTSHE Intellectual Output 2 – partner reports (2022). https://www.evalag.de/en/research/ltshe/experience-case-studies-of-lt-spaces [accessed: 29 June 2022].

LTSHE [Learning and Teaching Space in Higher Education] (2021). Erasmus+ project LTSHE, https://www.evalag.de/ltshe/ [accessed: 29 June 2022].

Temple, P. (2008). Learning Spaces in Higher Education: An Under-researched Topic. *London Review of Education*, 6, 3, 229–241.

Universidad Publica de Navarra, https://www.unavarra.es/home [accessed: 29 June 2022].

Universidade de Aveiro, https://www.ua.pt/ [accessed: 29 June 2022].

Uniwersytet Jagielloński, https://en.uj.edu.pl/en [accessed: 29 June 2022].

Wirtschaftsuniversitat Vienna, https://www.wu.ac.at/en/ [accessed: 29 June 2022].