From Classroom to Learning Environment

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Abstract The concept of "space as the third teacher" suggests that the learning environment is as important as the teacher in the learning process. A constructivist pedagogical paradigm requires student-centered learning processes and learners to be autonomous and active. Therefore, more and more stakeholders and policy makers interested in school innovation put school buildings and learning environments at the top of their agendas. The Organisation for Economic Co-operation and Development (OECD), the European Commission and many universities all over the world are observing case studies and promoting guidelines to implement new ways to design and furnish schools. Indire is leading a research project on educational architectures, which promotes a support framework, entitled "1 + 4 Learning Spaces for a New Generation of Schools." It is aimed at architects, municipalities, school principals and other stakeholders involved in the design, development and use of innovative learning environments.

Keywords Learning environment · Learning space · Third teacher · School architecture · Flexible · Classroom · School building

The school environments in which our parents and grandparents studied were designed to create hierarchical relationships based on criteria of control and discipline. In pedagogical terms, the classroom space, filled with rows of desks and chairs, was largely organized for "lecture-based" learning. The idea behind that model is that the knowledge possessed by the teacher needs to be transmitted to the learner. In such a context, active student participation is limited by the fact that most of the lesson is taken up with the teacher's explanations and presentations.

Many school buildings in use today were designed with this concept in mind. These schools contain separate classrooms, each for a different aged-defined group of students. Ordinary classrooms and special classrooms (such as work areas and subject labs) were connected via corridors and common spaces used only to move

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from one classroom to another. This model of school life includes an entrance, a route to get to your group-class's specific room, which no one leaves until the end of the school day, except for short breaks. Those buildings were designed and built for the criteria of that school model and no longer suit today's educational needs. The increasing complexity of the society we live in has changed students' educational needs from those of the past, when most buildings were designed for mass schooling.

Loris Malaguzzi coined the concept of the school space as a "third teacher." It is a very effective metaphor for describing the setting's role in a school system, which is not merely passive, or related only to making activities possible. The metaphor represents the way activities can be carried out and the way new generations need to get involved in student-centered tasks and initiatives.

If building design is predicated on a lecture-based schooling model, then it requires "fixed" spaces furnished with desks and chairs. A pedagogical paradigm that includes a variety of teaching methods and learner-centered strategies requires a different approach to the design of learning environments. It is no longer appropriate to determine the characteristics of the learning space without considering the changing needs and activities that will be carried out there. Since the activities are diversified and can change, the learning space should be designed for a range of different activities, featuring task-oriented zones fitted with flexible furniture and a variety of educational materials and tools. Open spaces equipped with mobile digital internet-connected devices are just one example of a new learning environment that requires a new conceptual vision. The standard classroom model loses its hegemony, and this opens new perspectives for designing and adapting innovative environments to diversified and changing needs.

We are currently witnessing more and more national school policy initiatives promoting widespread school building and reconstruction plans. These initiatives aim to revise the architectural guidelines for school buildings [1]. However, the issue is not only about updating the regulatory context. It is necessary to rethink the role of schools and modernize the educational space. There is a shift away from a paradigm based on static spaces towards a flexible and functional vision of space. In this new context, the local community is often involved in a design-oriented participatory process, or at least in a collective discussion and debate on defining needs.

Different stakeholders all over the world are interested in rethinking educational spaces:

- The OECD, with its work on the "Innovative Learning Environment" concept [2];
- The Joint Research Centre, European Commission, promoting "Creative Classrooms (CCR)" [3];
- European Schoolnet (EUN) and the group of international experts involved in the Interactive Classroom Working Group promoting international guidelines for adapting learning spaces [4];
- Ministries of Education in a number of European countries, through international projects and collaboration initiatives, such as the iTEC project and the Future Classroom Lab Initiative (FCL) [5];

- A pool of Australasian stakeholders, represented by the works of the University of Melbourne and the Innovative Learning Environments and Teacher Change project, involving organizations worldwide [6].

The need for new spaces is related to active pedagogy, which focuses the educational process on students' needs and eventually leads to a new conception of the curriculum. Problem-solving in complex situations, as well as life-long learning attitudes and learning-to-learn skills can be effectively implemented in environments that have been designed and created for active and experience-based learning, along with cooperative or collaborative activities.

In this context, Indire's research in school architecture [7] promoted a comparative analysis, developed insights and cases studies, which resulted in the publication of the manifesto *1 + 4 Learning Spaces for a New Generation of Schools* [8]. The 1 + 4 model was further developed by Biondi et al. [9] and then used as a model for case studies by Tosi [10].

The manifesto identifies five different spaces that have multiple purposes. These are: the Group Space, the Exploration Lab, the Agora, the Individual Area, the Informal Area.

The Group Space is the "1" in the 1 + 4 model. This place identifies the group-class and is the place where teachers present strategies and set up activities for students. Students can hold work groups and other activities here. The layout of this space should allow for different activities such as:

- Collaborating and working in groups, with workstations arranged in islands, equipped for interacting, planning, processing and analyzing data jointly.
- Designing in a group and creating products with instruments for dramatizing, developing, assembling, and editing multimedia content jointly (workstation arranged in islands).
- Performing individual tests, with workstations isolated to enable concentration for exams, tests, or other type of assessment.
- Presenting work, whether individual or group, with tools for collective viewing or for projecting multimedia content and sessions set up for optimal viewing.

This "1" space is the heart of daily learning activities, the home base and the place where students build their identity.

The Exploration Lab is the place where learning by doing happens: students can observe phenomena and take part in simulations here, as well as creating virtual or real artifacts to test previous hypotheses. It is where science and creativity meet in practice. It is a lab that has no specific topic, where students bring their knowledge from different subjects and apply it to individual projects.

Agora is a place where the entire school community (students, teachers, school personnel, and parents) can meet. It is the school plaza where the community can share and exchange ideas. This place is used by groups of students for creative activities, or for discussions arranged by teachers for students.

The Individual Area is where students can focus and work quietly. Students might typically withdraw to this area to read or reflect. Effective use of this space

supports informal learning by enhancing individual responsibility and independent time management.

The Informal Area is for relaxation in the broader sense. It is a place for recreation, but also somewhere to hang out. This space is used for listening to music, relaxing and for informal group meetings. Different places in schools can be readapted: soft chairs or sofas in transit areas, such as corridors or under-stairs, can create spaces for students to gather.

This manifesto has several purposes. The first is to show policy and decision-makers examples of pedagogic use of space. The second is to inspire design professionals with examples of student-centered design. The third is to support local schools in the creation of innovative spaces, with a framework that is both far-reaching and inspiring.

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