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Maria Fianchini
Editor

Renewing Middle School Facilities

 Springer

Editor

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Foreword

We all have particular childhood memories of being at school. It could be a memory of a particular teacher, it could be learning particular things, or it could be the school itself, the smell, sounds and what it looked like.

That such memories stay with us shows how much we are influenced by these experiences in our early years. The school as a place then has power over us.

There is currently much debate in education about the forms of pedagogy that will lead to outcomes that will best support students as they emerge as young adults. It represents a growing concern that in a rapidly changing global context although what you know is important it is what you can do with what you know and how you relate to others that is crucial.

The challenge for schools is to provide an environment where young people can learn to develop their ways of thinking whether it is curiosity, creativity or problem-solving, ways of working together through communication, collaboration and teamwork, and ways of living together—empathy, self-esteem and resilience. Societies have a responsibility towards their young. They should be kept safe and healthy; education should be inclusive and equitable. The design of the environment is crucial in facilitating this by providing spaces where students feel safe, connected and stimulated.

Buildings by their nature last a long time. It is increasingly apparent that many existing school buildings are not well suited for the emerging approaches in pedagogy. They generally reflect a one-size-fits-all model of standardised class groupings and teaching periods, whereas the ways that students are grouped, how time during the school day is organised and how teachers work together are changing.

An underlying theme in this book is that to meet the needs of learning, we cannot rely on short-term “quick fix” adaptation projects to the existing school buildings to meet the needs of change. Learning environments need to be adaptive.

The task of designers is to create spaces for the predictable and known, but at the same time be capable of adapting to the unpredictable and unknown. One place to start this design process is to ask those who use these environments how they might

be better supported. My work on the OECD School User Survey was predicated on the design of learning environments as being a co-operative process.

Our understanding of how learning environments impact on learning will continue to develop. As you will soon realise, this book gives both thought-provoking insights and practical tools that designers, clients and sponsors can use to help create more effective learning environments.

London, UK
March 2019

Alastair Blyth

Preface

A renewed focus on school infrastructures and their role in relation to learning process and educational objectives has begun to spread worldwide, with the start of the new millennium. This is highlighted by a number of researches, international policies and national and local intervention programmes with the purpose of supporting the dissemination of new educational models.

The search for ideas and solutions—aimed at generating physical environments fit to new forms of teaching—has been developed extensively in designing new schools, and it has permitted to realise high-quality facilities of extreme interest to both architecture and pedagogy scholars. Indeed, designers had the opportunity to update school types to give space to new and increasingly varied teaching models, and this happened also thanks to the growing technical knowledge in building performance control (such as acoustics, thermal comfort, energy efficiency and so on).

At the same time, however, the promotion and diffusion of innovative models of adaptation and use of the space in already existing schools seem to be much more difficult, and therefore, the amount of exemplary cases available results to be much less.

There are many different reasons for such diverse attitudes in the construction of new schools and towards the interventions in the existing ones. Technical-economic factors (i.e. the large amount of resources committed for the improvement of energy performance, safety conditions, etc.) and some building characters certainly limit the opportunities or make the work for interiors renewing more difficult. Problems, however, do not concern just the technical issue, but also involve the concept stages, for the evident difficulty in imagining new and different scenarios of use within traditional constructions and consolidated situations, by those involved (such as principals and teachers), who should define the goals of the renewing and discuss them with the designers.

In Italy—just as in most countries where buildings' life expectancy is quite long—this is a problem because we have little need for more schools and the possibility of replacing the existing ones in a short time is very limited. Therefore, most schools of the past will be the schools for the future and we cannot continue being focused just on short-term or emergency building adaptation targets. It will be

necessary to pursue the goal to redefine—as regards school estates—places and environments that could support (and indeed determine) “educational environments” in line with updated and easily implemented learning programmes.

But learning is not the one issue. In fact, these places should also be able to make everybody spending their days inside feel well, and generate opportunities for the use and empowerment of the students and the wider local community, beyond school hours and activities. So, existing school renewing is a great challenge to be faced as an attempt to offer all future students (and their communities) the same educational chances, at least as regards the contribution of the “third educator”, according to Malaguzzi’s meaning.

This was the starting hypothesis of a research entitled “Back to School” carried out between 2015 and 2016 by a group of scholars from the Department of Architecture and Urban Studies—DAStU—of the Politecnico di Milano and the Department of Human Sciences for Education “Riccardo Massa” of the Università degli Studi di Milano-Bicocca, in collaboration with a representative from the regional education department and some school communities.

The first goal of this research was to outline an updated framework of knowledge on how the needs of school communities and their ways of use are evolving, in relation to types and conditions of the building, changes in the activity organisation, objectives of educational innovation, social dynamics, etc. Consequently, three dimensions of the school environments have been pointed out, to be considered during both the analysis stages and the further developments: (1) the school as a learning environment; (2) the school as a homely environment; (3) the school as a centre for civic and social use and responsibility.

Moreover, such research specifically focused on schools for pre-teen students (11–14 years)—the “middle schools” or “lower secondary schools”—as a field of study. Actually, there is a long tradition of studies and projects aimed at enhancing the role of the physical environment in preschools and primary schools. Instead, in the higher grades this attention drastically decreases, as if the spatial and environmental relationships with learning and wellness lost importance, in the age of abstraction and construction of personal identity. In addition, this matter also meets specific pedagogical and psychological considerations on the importance of the school environment, in relation to teen’s behaviours, school dropout and so on.

Therefore, a field survey was carried out involving the communities of five middle schools, all different in terms of context, size, crowding, age and technological characters of each facility, partly according to the “International Pilot Study on the Evaluation of Quality in Educational Spaces (EQES)”, promoted between 2005 and 2009 by the Centre for Effective Learning Environments (CELE) of OECD.

Finally, even if this was a base transdisciplinary research, it seemed necessary to the working group to move from the results of the first analysis towards a more action-aid goal and so outline some contributions aimed at stimulating renewal processes and even likely to be promoted and activated quite easily and effectively.

Indeed, there is an evidence of many critical conditions (like the shortage of funds and the slowness in decision-making of many authorities) which prevent the setting up of interventions on schools that can face the whole range of building problems and user's needs. That's why the action-aid products were expected to support the involvement and the self-organisation of the whole school community in taking in charge some of the decisions and activities necessary to pursue better conditions of use and management of the schools, according to the principles of social empowerment and resilience. Last but not least, they should help making the most of the available resources—from the infrastructural ones (interior and outdoor spaces) to the natural ones (greenery, water, solar energy).

This book shows the outcomes of the “Back to School” research (that was funded by the Department of Architecture and Urban Studies—DASStU—of the Politecnico di Milano in 2015), with the hope to meet the interest of a wide target of scholars and school professionals. It is structured into three thematic parts.

Part I “Renewing Strategies for Existing Schools” introduces the theoretical frameworks of this work, dealing with:

- the scenarios of policies and programmes for renewal interventions of the existing schools promoted both on an international level by OECD and through a number of EU research projects and on a national level in a selection of European countries, with a final focus on Italy;
- the evolution of pedagogical thinking with regard to school environments, throughout the contributions of key figures in the history of education; a specific focus on the relationship, so far not adequately studied, between teenagers and school facilities as well as their asking to be involved in every decision affecting them;
- some outdoor learning experiences, with the prospect of making them current; outlining the relationship over time between the school ground and its use for learning activities;
- the resilient approach and its link to the issue of school infrastructure management; the capacity of the school to be able both to integrate schools' success in socially and functionally acting with the neighbourhood and to develop a stable form of subsidiary management of the school infrastructures.

Part II “Updating Knowledge of Middle Schools” includes a single chapter about the developing path and the results of the experimental field research in five case studies, aimed at updating the knowledge on problems and needs in the relationship between users, activities and infrastructures, in middle school. What emerged from the observation of the technical and functional building systems during on-site tours, and from accounts given by members of the community collected from focus groups and broader inquiries using questionnaires, has the potential to be a useful basis from which to start reflecting and acting towards a renewal for all those involved in using schools or in the decision-making processes with regard to such interventions.

Part III “Supporting School Communities’ Planning” takes a small step forward, moving away from identifying the problem towards the realm of action. Here, a set of products have been gathered, such as a collection of exemplary cases, procedural tools or design solutions that are taken as an incentive and an aid to school staff and communities, as well as to designers, clients, sponsors and so on. They regard:

- school interiors, explored by mapping paradigmatic projects, in order to identify a number of “attitudes of recurring projects”, and further studied through original interviews with the authors;
- playgrounds, and their opportunities for educational and recreational use, as well as for the improvement of the neighbourhood’s environmental resilience, through a proposed methodological approach and nine different best practices regarding how to best manage the use of the schoolyard;
- community action, analysed in terms of resilience, in order to better understand their characters. Most of the exemplary actions are aimed at providing students with good-quality teaching in comfortable, functional and stimulating environments, while others are aimed at upgrading the neighbourhood structures and thus improving the civic sense and knowledge of the relative community;
- operability conditions in schools, with a proposal of a simplified set of tools to support the “ex ante” operability review, adopting the quality function deployment (QFD) model and the function breakdown structure (FBS) technique within the scope of middle school educational projects.

Milan, Italy
February 2019

Maria Fianchini

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