Physical and Architectural Learning Environment

Educational Spaces 21.
Open up!

Vol. 1.

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INTRODUCTION

Usually when we think about educational spaces, what comes to our minds is the architecture of a school building. For many a modern school is synonymous with beautiful architecture. Physical space has significant influence on the quality of education. However, even a state-of-the-art and elegant school building is not enough to determine that a given facility offers top-class contemporary education. As in the case of a school abundant in education technologies, an architecturally stylish school may, too, be a place where the education methodology applied is absolutely outdated and non-compliant with the realities of the 21st century pedagogy. The beauty of a school should lie not in its architecture but rather in solutions building a rich learning environment at school and stimulating the motivation to learn among pupils in various ways.

Hence, the organisation of physical space and building architecture that allows the best use of the attending pupils' potential still poses a challenge for the quality of education. In theory, one could study anywhere but the question is whether the results will be the same everywhere and in all possible circumstances. The way technology and the Internet are currently changing social life also affects the manner in which educational spaces are (re)defined and how they can be (re)organised today. The place and form of coexistence with other people in educational environment are not insignificant for the entire learning process.

Throughout history, people have been learning and gaining new skills in different situations that were often similar or typical. One person would meet another and learn something from them… People would learn on the spot, where learners happened to be. Most of the time that environment would not include a space limited by walls or other structures. After all, for a great part of history of human civilisation, there were no schools of general education understood as a school buildings or sets of rooms where multiple pupils would be taught at the same time, according to a specified educational system. This is, by all means, a relatively recent human "invention". As a consequence of the requirements that industrial society has imposed, schools, too, became "manufacturing plants producing graduates," employees needed in the industry. And, unfortunately, in numerous cases, they still play such a role today, in the era of information society. Is the traditional school really a good place to learn? Will pupils learn efficiently in every educational space? It is doubtful.

School consists of places and people, i.e. among other things, relationships we build. The conditions must be right for great things to happen. We have all probably heard about scientists and inventors who had conceived some brilliant ideas outside of their offices and laboratories, somewhere else, where they would find refuge in their search for a better atmosphere for contemplation, work and inspiration. We should look at schools, too, from a similar perspective – does it always have to be a classroom where pupils are meant to learn? Perhaps it does not. Perhaps it should be a classroom divided or organised differently, or maybe more open? This is no call for tearing down the walls of a classroom or school and searching for a different organisation of learning in space; however, we should ponder whether that school space could be a house for a better, richer and more stimulating learning environment.

The issue of the organisation of learning space has been studied by many outstanding educators. Rudolf Steiner, Maria Montessori or Célestin Freinet were advocates of adjusting the classroom to the children rather than the other way round. "The most important task of a teacher is to provide the pupil with the so-called prepared environment as personality is developed through interaction with the surrounding environment," claimed Maria Montessori[1].

The surrounding space influences the manner of learning and the effectiveness of acquiring knowledge. An interesting point of view was presented in 1999 (and subsequently developed) by David D. Thornburg, an American researcher and futur-

ist, the author of "Campfires in Cyberspaces", a renowned book in the Anglo-Saxon world[2]. Thornburg was inspired to deliberate about educational space by technological development. He started to think how a school of the future could look in a few dozen years and what foundations it should be based on given that it was rather certain that we would be surrounded by new technologies everywhere. Thornburg came to the conclusion that even in a world swelling with technology, one could define certain primary metaphors of space which should coexist, so that we could learn – he claimed that it would still contain symbolic campfires (hence the book title).

Based on anthropological research (Gregory Bateson's works, among others) and his deliberations about the primary processes of learning, he proposed that educational space should be organised in a way that offers a given community of pupils the possibility of coexistence with other people in various educational situations. He indicated three such situations, which were subsequently supplemented by two further ones:

THE WATERING HOLE – a place where diversity meets (different people with different views). We come here to refill our bodies with energy and minds with ideas together, to inspire each other with new concepts. Everyone can be both a student and a teacher here.

THE CAVE – we retire to the cave when we want to flee the noise and peers, when we need to think, have some rest and be alone for a while, to focus on ourselves and on our thoughts. Here, we deliberate about questions, content and relationships.

CAMPFIRE – this is where we all gather, sit down together and listen to stories, talk and exchange opinions and information, work as a group on their own ideas.

SANDPIT/LABORATORY – this is a place for doing experiments, for making at-

tempts and mistakes; a safe place where we do not worry about disorder and mess.

MOUNTAIN TOP/STAGE – here, we share our knowledge and information with a number of other people, we show our potential and strengths, and internally – we discover our weaknesses.

Let's take a moment to think: have we ever in our lives been to such symbolic places... Perhaps on the Internet? Can we find such places in our schools?

Do we have a problem with school space? Many people will probably say we don't; after all, there are plenty of wonderful, new school buildings where one can learn all right. But is it not a mere illusion? Perhaps all we look at is the brickwork and what we cannot see is that education is not always thriving inside.

This may be a bit exaggerated, however... "let's imagine a typical Polish school – probably one of the schools built under communism, around 50 years ago – where classrooms are furnished with rows of desks and corridors are empty, with brownish green dado on the walls and dark grey linoleum on the floor... Is it possible to do anything creative in such space? Can the dirty and stinking restroom become the Cave and the sports field, where it is forbidden for children to play, the Watering Hole? And then there are all those "stop running," "don't argue," and "no talking" instructions. There is no space here for expression or co-operation either for pupils or for the teachers. A typical teachers' room is as poor a Watering Hole as a classroom. And if the teachers have no place to learn, how are pupils supposed to do that? A general concept is popular among educators that if someone wished to design a space most unfavourable for creativity, a typical local state school would provide a satisfying solution... Łukasz Badowski has recently written on the Wyborcza.pl portal[3].

"The real problem which contemporary education has yet to address is the fact that school space is unappreciated," maintains Professor Aleksander Nalaskowski, from the Nicolaus Copernicus University in Toruń[4]. "It is a challenge for educators, as it is them who are to become content investors of school spaces and places... who ought to have most influence on the architects, artists and designers working on the school architecture but also on the existing school community itself – as we can and we should also change things that have already been designed. The pupils also have to participate in the entire process – school buildings mostly satisfy the expectations of parents and teachers but almost totally omit pupils' desires," adds professor Nalaskowski.

This guidebook can serve as a valuable source of inspiration and ideas regarding the organisation of physical school space which may help us make learning environment rich in educational situations and thus stimulate faster and more in-depth development of the pupils attending.

Have a nice reading!

**MARCIN POLAK,
Think! Foundation & Edunews.pl, Poland**

DESIGNING SCHOOL SPACE (TOGETHER)

As recently as a few dozen years ago building educational facilities was strictly related to industry development. Schools were erected one after another in order to quickly create institutions "producing" future plant workers. By way of example, in 1959-1972 in Poland a school building campaign was organised on the occasion of the one-thousandth anniversary of the establishment of the Polish state, as a result of which 1,417 new schools were erected[5]. All of them were designed in line with one of several standard projects (they were mostly 2 or 3-storey buildings) adjusted to local conditions (they were constructed from prefabricated pieces of walls and roofs prepared on the construction sites[6]). Nobody asked or consulted anyone about what the school should look. As one of the designers, Tadeusz Binek says: "What really mattered back then was that the schools were to be built fast. They had to be cheap and functional.[7]"

Today most countries may boast developed school infrastructure, which must be continuously extended by adding new facilities due to the current demographic trends. However, the world has changed – now, the services sector is prevailing in market economy and identical "standard" graduates are no longer required; quite the contrary, employees today should vary, have diversified competencies, talents and types of intelligence. We cannot build schools and other educational facilities according to the same pattern pattern used in the past any longer. Educational spaces must support multifaceted children and youth development if we want them to be successful in personal and professional lives in the 21st century.

Designing space is a process that at a first glance seems too complex and problematic for people not equipped with appropriate knowledge and experience to be involved. Not to mention the children as they have no idea about "adults' business". One could not be more wrong...

Fountain of co-operation

In 2006 in Bristol, South-Western England, in a small state primary school Luckwell, people started thinking about enriching the school premises with a new object, a fountain, which could serve children's education. The idea, as an educational innovation, was enrolled on a competition held by Futurelab, a research and development institute dealing with innovations in the field of education. But what kind of fountain should it be? Where should it be installed? Who is going to design it? What features should it

have? At the very beginning, the most important decision was made: children from our school are to be engaged in the project; let them speak out what kind of fountain they want, where they want it to stand, what they would like to do around it and how it should help them study.

And so an educational experiment emerged, known as Fountaineers project, in which three institutions were engaged: Luckwell Primary School, Futurelab Institute and Stakeholder Design (a company proposing solutions designed to overcome various limitations in public space) . The assumption made at the very beginning was crucial for the performance of the project. Although formally the three above institutions designed the new object on the school premises, it was the children (aged 5 to 11) who were the "owners" of the fountain and who made the most important decisions in the project: how it should look, what it should be used for, how they want to interact with it, how they will tend to it and manage it.

The timing of the experiment was not accidental – at the time, in the United Kingdom a heated debate was held about the government program Building Schools for the Future, in which the government allocated GBP 45 billion to building and reconstructing schools of schools. By carrying out the Fountaineers project the organisers wanted to draw the attention of schools in the UK to the role and place of children in the process of designing or reconstruction of schools, as the actual school "owners" and its principal users.

The Fountain in Luckwell school was launched during a festive ceremony in July 2008. But before that, the entire school community (exactly 208 pupils and 14 teachers) had been engaged in the design process (this was the key objective of the project). The children played the roles of researchers, co-designers, advisors and engineers; they worked together with external designers and experts. The result of their work was not supposed to be just an "ordinary" fountain. The children, in co-operation with adults, designed an interactive and programmable smart fountain working based on movement, sound and touch sensors steering the water movement in different manners. They were able to converge an average object often present in public space into a state-of-the-art educational tool, which can be used during a number of lessons.

A state primary school in Hellerup near Copenhagen (Denmark) was also created in dialogue with the school community[9]. The school opened in 2002 and it is significantly different from the usual image of a school. That school has no traditional classrooms, it is located on three storeys with a large common space (a major role is played by grandiose stairs leading to the upper floors), and it was organised so as to resemble a house. 750 children aged 5 to 14 attend that school. Usually, three groups of 25 pupils share one space: an open space arranged in various ways, a kitchen and a teachers' room. Shared classes are held in the so-called home bases, which are hexagonal approx. 2-metre wide platforms around which pupils gather. Group and individual activities are carried out in countless places in the open space. One could get the impression that it is another example of a school designed by some creative architects and designers. The Gentofte commune authorities were the investor. The commune initiated and carries out a two-year dialogue between all the stakeholders: the parents, pupils, teachers, local authorities, architects and designers. The later project was the result of that co-operation and long hours of discussion. A lot of concepts were conceived that were subsequently used in the project – e.g. the hexagonal home bases were a solution suggested by the teachers who tested it with the pupils . The learning environment here bears a resemblance to home because home is a place that is the closest to the pupils[10] of a primary school[11].

Of course, there are more examples of involving the school community in designing educational spaces similar to those presented above. They can be found in almost every country, at schools of various sizes and providing education at different levels. Both instances described above show that a school community can be a valuable participant in the process of designing leraning spaces. As the example of Fountaineers suggests, the participation of pupils and teachers may not only concern large investments (building or reconstruction of a school) but also some elements of school premises. We can easily imagine various situations in the school life where the engagement of the school community in the design process could bring significant benefits beyond the "construction and renovation matters":

1. **Painting elevation** – perhaps it could feature a mural devised by pupils?

2. **Furnishing niches in the corridors** – perhaps pupils could design relax, integration or studying zones there?

3. **Replacement of pavement tiles on the school premises** – the new surface could feature ground chessboards or tic-tac-toe grids, or hopscotch courts, etc.

4. **Painting school walls** – in place of one imposed colour pupils could enliven the school interior with paintings or relief sculptures of their own.

5. **Embellishment of lawns with flower beds and bushes** – pupils could also be given an opportunity to design educational gardens where they could study.

Benefits from the inclusive design model

Designing educational spaces (as well as the public ones) should assume broad inclusion of all stakeholders. In particular, pupils should participate in

the process as it is them who spend long hours at school (are they not the true "owner" of schools?). Their participation from the very beginning enables real and responsible engagement of learners in shaping the educational environment, which helps them acquire important experience. Learners may be presented with different proposals of involvement in the design process – from consultations (minimum involvement) to real inclusion in planning, decision making and concept evaluation processes as well as deciding about the final shape of a given object or elements of school premises. The broader the inclusion the better for the final result, which subsequently translates into studying results.

The Fountaineers project described above was very thoroughly investigated and recorded[12]. So, an interactive fountain was built, but is that all? What were the observations? Here are the most essential conclusions:

- **Learners and teaching.** Involvement of pupils and teachers revealed a huge potential which had not been utilised before. Both the teachers and children made valuable intellectual contributions in the project as learners as well as experts and researchers. The tools, approaches and educational strategies were substantially extended, which made learning more thorough, authentic and significant for the children. They proved that they are capable of undertaking huge challenges, participating in design projects, solving problems and managing works which form part of the learning process. Their motivation and quality of learning improved.

- **Change of behaviour and roles**. Allowing the children to speak out, make decisions and control the learning process gave the teachers the opportunity to look at their pupils, their talents and relationships they build with adults from a different perspective. Traditional transmission models in teaching were replaced with new approaches along with new roles for the teachers: as co-designers, assistants or merely moderators (facilitators) streamlining the learning pro-

cess among children. The project proved to be a true accelerator of didactic changes at school since teachers started transferring their own experiences from the project to their lessons. According to the teachers from that school, being a co-designer of the fountain turned out to be beneficial both to the teaching staff and the pupils. The teachers were surprised by the scale of children's engagement and their input in the project. Actually it was them (children aged 5 and 11!) who managed the project and had the largest impact on the looks and functionality of the fountain.

- **Educational innovation.** Changes in the behaviour and roles of the teachers and pupils encouraged the teachers to look at the curriculum from a different angle and introduce a more holistic vision of education. As a result, after the project was completed, the teaching staff re-evaluated the previous teaching concept and came up with a new one focusing on the development of versatile competencies of pupils, including creativity and innovativeness. As Sue Roberts, a teacher at Luckwell, commented "the collaborative approach to teaching and learning in the project proved so good and effective that we decided to use that method to a larger extent in the curriculum. (...) We will systematically introduce a curriculum focusing on skill development and putting the pupil in the centre, with the fountain model as its integral element. [13]"Consequently, they abandoned subject-based teaching and started addressing more comprehensive topics using knowledge from different fields and focusing on the development of skills and competencies of the pupils. In the new concept, pupils became more responsible for their learning.

- **Learning space.** A natural discovery of the project included new spaces beyond the classrooms where pupils could successfully learn. The learning space grew significantly, as the school opened to and launched broader collaboration with the local community. Thanks

to the fountain, teachers looked at the rooms where the children were learning before from a different perspective.

One of the experiment initiators, Sean McDougall from Stakeholder Design summarised the Fountaineers project as follows: "the aim of the project was to expand educational experiences and various learning styles demonstrated by pupils so as to reinforce school's relationships with the external world. The smart fountain enables children as young as 5 to learn and develop such skills as teamwork, problem solving, communication and perseverance in pursuing their goals. By making the decision to involve the future users of the fountain in the design process, we proved that children are actually capable of participating in and co-managing complex projects and, at the same time, we revealed major truths about children's educational needs in the 21st century.[14]"

For the sake of every project regarding educational spaces, it proves sensible to include learners in the works at every stage of the design. This also provides the pupils with an opportunity to acquire a series of educational experiences, including better understanding of: the design process, landscape design, project management, graphical design, ecology and sustainable development, as well as financing. Co-operation during the design process stimulates the development of listening and reading skills, critical thinking and communication. On the other hand, teachers and guardians can develop their mediation, moderation and mentoring skills as well as the ability to give feedback[15].

Foundations of good design
What recommendations could be derived from the experiences of the projects mentioned above? Educational space constitutes an activity area of an educational facility requiring a thorough approach: a bird's eye view on the educational institution; long-term thinking; engagement of the entire school community and striking a consensus regarding the way that space should look like; adjustment of the curriculum; integration of educational technology with the formal and informal process of learning; selection of decorations and fittings, as well as determination of interaction patterns with the external world.   Our schools need to develop a serious approach to designing educational space in the spirit of collaboration among multiple subjects and integration of numerous pedagogical and social concepts. The vision of that space should be supported by organisational culture, theory of learning and participation of the school community in creating it (as well as shared responsibility for its final version) irrespective of whether building a new facility is concerned or reconstruction, development or renovation of an existing one.

If the aim of the process of building a new school or reconstruction/modernisation of an existing one is to boost effectiveness and improve quality of learning, some fundamental principles in the design process should be defined as follows[16]:

1. Flexibility (support)

- Multiple users and multiple potential applications.

- Diversified learning environments – physical, virtual and mixed.

- A possibility of space arrangement and re-arrangement.

2. Inclusion (adjustment)

- Access and the chance to participate for all

- Addressing local needs (i.a. the demographic ones).

- Individualised learning.

3. Co-operation (creating opportunities)

- Team learning and team projects.

- Involvement of experts.

- Using local networks, partnerships and learning communities.

4. Creativity (achievements)

- Commitment, innovativeness and learning.

- Social and ecological harmony.

- Increase of the social capital.

5. Efficiency (delivery)

- Learning faster and more thoroughly.

- Sustainable and cost-efficient tools and fittings.

- Effective management and administration.

In the process of designing educational spaces the behaviour of the ordering party is crucial, which, in the case of a school, is represented by public institutions, e.g. local authorities.

Unfortunately, the behaviour pattern of a public ordering party is quite standard and widespread throughout Europe: motivated investment need – application for funds – acquiring funds – announcement of a call for bids from contractors – selection of a contractor – project – possibly community consultations – carrying out the investment – putting the investment to use. The above pattern usually allows for minimum or even illusive participation on the part of stakeholders. In most cases, there is not enough time for each of the steps as calls for bids and tender procedures have their own demands and time limits. This primarily concerns such investments as building a new school or reconstruction/development of an existing one. However, it must be stressed that an ordering party that does not only care about the quality of school infrastructure but also about the quality of education at that facility can and should always find a way to include the school community in the design process. It is all about deepening the planning process and thinking

at which stages the voice of the school community may constitute a significant contribution in the project. Most of the time this can be done at no cost, within the deadlines set by the procedures if only there is a will of co-operation among the officials. It must be borne in mind that, in the majority of cases, the proposed investments and solutions are supposed to enable a given educational facility in a particular local community to educate the youth for many years to come. Therefore, it is worth devoting more time and thought at the very beginning of the project and discussing the idea, the initial concept and then the project and the plan of its implementation.

The reality shows that designing educational space is a huge challenge for the both designers and the educational institutions. There is a real threat that proposed solutions will have little to offer in terms of modern and multifunctional educational space beyond the visual impression. This has been confirmed by experiences gathered in the course of a British government program Building Schools for the Future, when it turned out that there were not enough designers with sufficient knowledge in the field of education or that the involvement of the school staff in the design process was too scarce for the ambitious plan of building/reconstruction of modern schools[17]. Insufficient or no participation of the school community in such a discussion may lead to repeating solutions developed in the industrial era (in other words, to the reproduction

> **Many of the schools that are being built are unsuited to the changing future pedagogy, curriculum and learner expectations that we can already anticipate. They also lack the agility to cope with further anticipated changes that we cannot yet know in detail.**
>
> - Stephen Heppell[18].

of a school which those architects and designers attended, with just a slightly more up-to-date design) or to emergence of facilities which have a modern and original external look but whose interiors may prove inadequate for an educational facility or have defects seriously hampering the school's day-to-day work.

That is why the first stage of work, i.e. the conceptual one, is so crucial. At that moment, discussion should be initiated (even in a small group) regarding the place of the school in the community, taking into consideration a few dozen years' perspective. It is also the time to ask several key questions and to find answers to them. Such a discussion should cover in detail the vision of the school (new, reconstructed or developed), ideally understood as an "open school of the 21st century." A discussion should also be held in the case of modernisation of existing buildings. Educational visions developed in a broader group of people help to implement the intended purposes and better understand the challenges that are to be faced in the future by pupils attending a particular school. In the case of renovation and less complex works, a discussion should also precede decisions taken by the school principal. For every type of works performed at schools we should try to remain open to the voice of the most important users of the educational space at school.

How can pupils be effectively included in the design process?

Bearing in mind fruitful co-operation, particularly with the younger pupils, it is worth taking into consideration at least some of the suggestions below[19]:

- Provide a wide range of resources, media and contexts through which children can convey their thoughts, ideas and opinions.

- Provide compelling and engaging tasks. Give clear instructions but allow children adequate space for their own exploration of ideas.

- Provide templates and guides to all activities.

Make the message clear and the language appropriate in all channels of communication with the design process participants.

- Allow the children to make their contribution in the project taking into account their own styles and individual preferences.

- Ensure a range of activities for children to work alone, in pairs and small groups, as well as whole-class activities.

- Thoroughly "read" children's responses – this is not only about what they are trying to say, but also about the way they convey it and the things they focus on.

- Give children meaningful activities that have a tangible impact on the project's success.

- Communicate to children that their views, ideas and thoughts are valued and central for the project.

- Demonstrate how children's participation impacts design decisions and celebrate this.

- Engage children in reflective processes about the learning process, problems and issues, and value what has been learnt.

- -Celebrate achievements and communicate and promote them as much as possible.

Space supporting education

The school is a space where one can design a most wonderful learning environment. The school building itself and the surrounding school premises may be designed as educational tools rather than simply physical spaces in which children learn. The green areas around the school may be transformed into a botanical garden where every pupil will have an opportunity to make observations and measurements or compare his or her real world observations to the things they learn in the school building. Similarly, a vegetable garden could be used in school educa-

tion as a practical tool allowing children to absorb the educational contents much more effectively. Actually, the physical space of the school could be filled with dozens or even hundreds of various educational tools. By way of example, the arrangement of lamps on the ceiling of the school corridor could reflect one of the major constellations that can be observed at night; walls, floors and doors may feature different geometric shapes helping, solve mathematical problems; a school sundial could be used during a geography class; a selection of quotes would support the understanding of the cultural diversity in the world, etc.

However, it must be remembered that learner motivation is the key end product of the entire design process. Creating spaces facilitating effective learning requires a holistic approach, open dialogue with all crucial stakeholders at school and, in particular, with pupils and teachers.

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IN SEARCH OF AN OPTIMUM LEARNING ENVIRONMENT

For many years all over the world various scientific studies have been carried out in order to determine answer the question which factors have a positive impact on learning and which can inhibit this process. Researchers wonder, among other things, whether a properly organised physical school space (e.g. room size, proper equipment) and the so called school atmosphere can boost educational achievements.

The correlation between learning achievements and the physical learning space is influenced by many variables, both tangible (i.e. the quality of air and light, the amount of space per student, number of pupils per computer, etc.) and intangible (the culture of the school, the culture of learning in the classroom, belonging to a community, personal effectiveness). An optimal learning process is also influenced by personal relationships between teachers and pupils.

Research and the analysis of research conducted by Australian scientists have shown no direct relationship between educational space and its use by learners and their educational achievements (such conclusion can be drawn, inter alia, from prof John Hatties' meta-analysis)[20] Nevertheless, a properly organised space creates specific learning conditions and relations that may affect individual educational attainment depending on the combinations of a variety of factors.

Which factors of the learning environment affect student performance? Scientists agree only on a few that are basic[21]:

• acoustics / noise,

• temperature and humidity,

• air quality (indoor and outdoor),

• ventilation and air flow,

• light.

All other factors may also have some impact on the quality of learning but here, significant differences in opinion can be observed among the researchers. This applies, among other things, to.:

• colors,

• aesthetics,

• classroom and lab equipment (furniture, presentation tools, computer equipment, software, etc.),

• size of the school,

• class size,

• health and safety regulations.

In light of the foregoing it may be prudent to cite the practical approach to the educational space presented by the authors of the report *"Optimal Learning Spaces Design Implications for Primary Schools"*, who analysed dozens of factors affecting the quality of the space in which primary school pupils are taught.[22] Searching for optimal solutions for the organisation of school learning spaces, they proposed to divide the factors that affect the comfort of pupils and the quality of learning into three groups: naturalness, individualisation, level of stimulation

Naturalness – as human beings we have some basic expectations towards a given space, which result from our basic needs (air, light, security); within this group those that are essential for the quality of learning are:

- **Light** (exposure to daylight, which supports our visual comfort and makes it easier to visualise actions);

- **Sound** (conditions suitable for listening to expected sounds, i.e. teacher instructions, and absorbing the unexpected (i.e. noise);

- **Temperature** (maintaining a balance between warmth and coolness to ensure optimal learning conditions);

- **Air quality** (fresh air supply, dehumidification, removal of odours and pollutants).

Individualisation – every brain develops differently, therefore not everyone learns in the same way; from this group the following were extracted:

- **Selecting the optimal learning space** (based on personality traits and the perception of physical space, a thought process during which an assessment of the size, shape and height of different spaces and their suitability to perform a given task is made);

- **Space flexibility** (the design of a space that allows you to adapt it to the changing conditions and tasks by reducing or increasing the personalisation that allows for the execution of different tasks within reasonable time and cost);

- **Connection** (enabling the connection of different learning spaces in the framework of one learning environment, in particular the organisation of routes between school buildings and other elements of infrastructure and their immersion in local communities to benefit pupils. This should also concern the connection to the virtual space - a factor ensuring that targets are achieved and that the principle of inclusiveness is applied.

Level of stimulation – the space should not distract us, however, it may stimulate our behaviours, and thereby learning; in this group attention was given to three subgroups:

- **Complexity of the visual space** (diversity of the noticeable elements in our environment that does not lead to the perception of space as cramped and lacking order; this results from the level of organisation (order, cohesion) of the space, increasing the sense of transparency and familiarity with the environment;

- **Color** (color perception in the environment always carries a visual, social and symbolic meaning; the color of a space has a great impact on the psychological reactions of people and their well-being);

- **Texture** (refers to visible characteristics of the materials used in a given space; it is one of the most important elements in the design, next to color - a proper combination of hard and soft surfaces allows to shape the internal and external space and give them naturalness).

The above spatial features should be combined with practical planning solutions at the design stage. On the one hand, they should be analysed in relation to the key elements of the design and their location in space: place, setting up / orientation on the map, layout, appearance), windows. On the other hand, they should be adapted to the space in question, which should be arranged according to a specific architectural plan: room layout, circulation / flow of people between the rooms, location and functions of school outdoor areas (areas outside the building).

SCRI report authors suggest that the designers (that is, in the broad sense, all those who undertake actions to change the school space) pay attention to all of the above factors:

1. Light:

- **Location of the school** - location of the school in relation to elements of the natural landscape (i.e. a hill or tall trees obstructing the light) and other public infrastructure in the immediate vicinity (i.e. the proximity of high-rise buildings);

- **Orientation** - natural light should distribute optimally in the classrooms, by way of direct or diffuse light;

- **Windows** - should be large (even from the floor to ceiling) to ensure optimal light exposure in classrooms (and heat in colder climate zones); at the same time you need to pay attention to the need of shading of the areas if we plan to use educational technology; we should also pay attention to the greenhouse effect (too much sunlight together with poor ventilation and air conditioning increases the temperature and makes it difficult to focus).

2. Sound:

- **School location -** it is important to create a buffer zone of noise sources in the area, such as a busy street (row of trees, school playgrounds). Classrooms should have such a location on the project that pupils are not distracted by outside noise.

- **Layout -** it is also important to minimise the noise inside the building. The layout of the rooms should be designed so that, for example, open educational spaces, common grounds, (i.e. the cafeteria) are covered by structures or noise absorbing elements (i.e. corridors or restrooms may be such a buffer zone).

- **Rooms -** ensuring proper acoustics in the classrooms should lead to the application of sound proofing elements on the floors (or their parts) against, e. g. high heels clanking sounds, or the collapse of heavy objects. One can reflect on bringing carpets back to the classroom, as well as using sliding elements (i.e. screens), which will help to divide the classroom into separate individual work zones.

3. Temperature:

- **Orientation** - sunlight should naturally heat school buildings, especially the classrooms,

for a minimum of 2-3 hours a day (pay attention to external objects obstructing the light). The main educational spaces should be oriented towards the South-East or the South-West.

- **Layout** - an inadequate arrangement of the planned educational spaces inside the building can lead to overheating (greenhouse effect) or under-heating (non-optimal use of natural sunlight) the premises. Sometimes design failures may be caused by wrongly planned interior walls. The project should also ensure a proper circulation of warm air masses inside the building.

- **Windows** - the larger the window, the more natural light enters the room, but it also increases heat loss. Also the design of the window itself is of significance (one-, two-, or three-layer) and it should be adapted to each room both in terms of climatic conditions and geographical orientation (different ranges of sunlight exposure).

4. Air quality:

- **Orientation** – classrooms should be oriented in relation to the natural air movements in a way that allows the access of fresh air in classrooms. Note that you do not only need to focus on the external emissions of odours/contaminated air but also setting the location of, e.g. the cafeteria in relation to the classrooms (they should be leeward so the food smells don't roam the school, but are removed instead in a natural way by the air movements)

- **Windows -** when choosing the windows we should make sure that they are formed by several modules so as to allow to increase/decrease ventilation in the classroom depending on the weather conditions outside and the needs associated with fresh air (i.e. it is worth to plan smaller modules in the top part of the window in high wind conditions). The design of

the building should enable free use of windows to regulate the temperature inside (they should be opened easily).

- **Mechanical ventilation -** although this has not been mentioned in the SCRI report, in is worth remembering the benefits of mechanical ventilation in schools. For example, in the so-called passive construction methods in which the window can not be opened, air circulation is usually provided by means of mechanical ventilation with heat recovery (we describe such a project at length later in the book). In this way, 70-80% of the inside air is replaced in the building every hour, which means that the pupils and teachers are constantly provided with fresh and clean air in the classrooms[23].

5. Choice:

- **Rooms** – space-space diversity in the classroom allows pupils to better adapt to the space in accordance with individual preferences (i.e. some small children are not capable of sitting for long at tables but they will manage perfectly to study on the carpet). The space should be interesting and engaging for pupils but at the same time give them a sense of comfort. On the one hand this concerns possible settings of the same classroom but on the other also the design of zones in the classroom tailored to the needs of pupils (for example, an individual work corner or a conversation corner, or a corner for observing what is happening outside).

6. Flexibility:

- **Rooms** – the space should be flexible enough to allow to conduct diversified classes. When creating your design it is worth paying attention to the size of the school premises but also to their character - whether it would be composed of open spaces, half-open spaces or closed spaces (as traditional classrooms), covered (enclosed by walls) or transparent (at least one inside wall made out of glass), etc. The room should be large enough to be able to organise different activity zones within it (i.e. work as a whole class, in small groups, in pairs, individually). The decision on the nature of the learning space in the classroom should derive from the educational philosophy of the educational entity. Account must also be taken of the class size – it is not uncommon for the class to count over 30 pupils and then the principle of flexibility is usually very limited. It would be ideal if the classroom desks and chairs were foldable (but safe) - then you are able to adapt the space to the precise needs of the group. It is also important to consider the geometric shape of the classrooms – they are usually rectangular or square. If you want to increase the flexibility of the space in the classroom you can consider designing L-shaped. This way we create a cul-de-sac, which can be used for innovative forms of activities, for example. The pupils can sit there on the carpet and tuffets. Such a space is relatively easy to organise - we can accommodate benches for common work, a space for working in groups, and a space for innovative/design projects.

7. Connections:

- **Location** – when choosing a location for the new school it is good to take into account the adjoining social and cultural institutions. They will form an extension of the school's educational space (socio-cultural space), for example: botanical garden, cinema, theatre, museum, gallery, historical monuments. But if there is no such space it would be good to design the school buildings in a way that there is room on the school grounds for organising additional areas for learning outside the building, for example: vegetable garden, flower bed / botanical garden, pond or even a fountain (which can be designed by the pupils). Note that the space outside the building should also contain elements that enable social interaction between

the pupils, for example: benches, gazebos, lawn. A good design of the school's wifi network is another topic. The pupils should be able to access the virtual learning space from any place (also near the building).

- **Flow of people** – the key to a smooth functioning of the school as an educational institution lies in well designed routes inside the building as well as the connections between buildings and other elements of school infrastructure, which will be used by the pupils and teachers on their way to classes / breaks. Projects which do not take this element into consideration can lead to security issues, but also to many students arriving late to class. They should also include areas where pupils can meet, talk, learn informally (with a place to rest). New architectural projects can include a focal point for the school, where a large number of pupils, teachers and parents will be able to gather at the same time (square, atrium or at least a wide corridor). Communication routes should also be well marked. What works well here is, for example, the use of different floor colors to denote the so-called rapid transition routes, or for the color of the walls to indicate the different areas of the school (i.e. areas for pupils of different ages, which enforces their identity, but also the orientation in space).

8. Complexity:

- **Appereance** – the school should be a place where pupils want to come. Do not be surprised that they do not want to come to a school that was designed on the basis of a prison design, with small classes and a narrow corridor, where you cannot hide. Even the external appearance of the building should be welcoming. Unfortunately, most schools in Europe resemble Prussian barracks, representing a major challenge for the designers. How to design the architecture of the building to make it fully functional within, but also intriguing and attractive to the eyes of the pupils? Sometimes

it is enough to include an original facade in the design (i.e. lay a mosaic) or paint, for example: a mural, but it would be even better to access the school through a nice and user-friendly courtyard that can be representative for the school (and a place of social interaction). Inside the building the situation is similar - the space should be pleasant to be in - even if the architecture and functionality of the building makes it impossible to make every area equally nice and friendly, let's try designing areas that fill pupils and teachers with energy.

9. Color:

- **Appearance** – colors attract attention, have a significant effect on the emotions and psyche. Color can also serve different functions stimulating the brain inside and outside the building. Outside, it attracts the attention of pupils and affects their attitude and perception of the school. Inside - it affects concentration and it can distract or support the learning process. Color can also be adapted to climatic conditions, for example: in cold climates vivid colors will stand out more during the cloudy, rainy or snowy days and will make the landscape a little more vivid.

- **Rooms** – colors stimulate the brain in different ways. They can distract and evoke emotions – therefore the colors of rooms have an influence on the learning environment. The school space is a great place to experiment with different colors of walls and ceilings. The classrooms should have soft colors (though you could imagine a fragment of a wall or ceiling in a specific zone of the classroom in a color that has to stimulate activity). Color preferences change with age. Research conducted on 10,000 students aged 5 to 19 years has produced a list of colors preferred by pupils in different age groups. Heinrich noted, however, that the preferred colors themselves are not very suitable for painting over large surfaces and should be

applied just to elements of the design and in combination with other, softer colors. Nevertheless, because color has significance in the rooms, we may try to differentiate the walls, floor and ceiling, to break the monotony and visually stimulate pupils. It is worth noting that different color combinations in the classroom can cause different feelings in different pupils and produce different, not always positive, emotions. Therefore the selection of the colors in the rooms is crucial and should be preceded by an analysis of the studies and perhaps also consultations with the pupils of a given age. There are no restrictions as using different colors in different areas of the school (i.e. library, cafeteria, atrium, hallways, etc.) It is also good to organise a competition among the pupils for an art project for some of the corridor walls (the execution itself can be entrusted to the artists), because then they will start feeling like hosts of the school or a given area.

- **Flow of people** – colors also reinforce the organisation of the people movement in the school (they work in a way similar to bike lanes painted a different color - they set the fast circulation lane that can be used on the way to class).

- **10. Texture**

- **Outdoor areas** - the quality of the school space depends largely on the areas around the school building and how they are organised (benches, gazebos, paths, sports fields, lawns, gardens, trees, pond, etc.). Especially in warm weather it allows to spend time outdoors, which is very important for the development, especially in younger pupils (the design should also include elements of outdoor areas that can be used in bad weather). In the school surroundings it is not only the organisation and aesthetics of the area that are important, but also what kind of design elements were used in

AGE	PREFERRED	UNACCEPTABLE
5-8	Red, orange, yellow, purple	Black, white, grey, dark brown
9-10	Red, orange, teal	Grey, dark brown, black, pastel green
13-14	Blue, ultramarine blue, orange	White, black, grey, olive, purple, lilac

Photo: Primary School no. 143 in Warsaw, Poland

the organisation of this space. For example, is the running track made out of pebble or tartan, were natural (e.g. wood) or artificial elements used? Were generally speaking, the more natural elements the better we feel in the school's surroundings and we will come back to it with a better attitude. It is recommended to use natural vegetation and water - it allows to show the natural cycle of nature and has a positive effect on the learning process and the development of cognitive skills.

When designing a new school building or introducing changes in the existing school space in order to create the best conditions to enhance learning we should bear in mind the above factors.

**MARCIN POLAK,
Think! Foundation & Edunews.pl,
Poland**

SCHOOL BUILDING AS A FRIENDLY, LEARNING ENABLING PLACE

SCHOOL AS A SECOND HOME

Pupils spend spend a few dozen hours a week at school. The school is often their second home. Does the space surrounding them provide comfortable enough development conditions? Do they actually feel good and safe in the school?

MARCIN POLAK, EWA RADANOWICZ
School Complex in Rodowo Małe, Poland

From the outside it does not make a great impression but a lot of people entering the school in Rodowo Małe have the impression that they are coming in to a big, warm home, a place where pupils, parents and teachers take pleasure in entering. This impression is not the result of the corridor decorations but of a comprehensive redesigning of the concept of the school space by the management, teachers and pupils, as well as of an approach that has recently brought the school the title of "School with power", awarded by the International Organisation for Social Innovators Ashoka. There are old sofas and armchairs everywhere. They encourage meetings and discussions. The walls are decorated with shelves filled by different objects and artistic projects. Each nook and cranny has its own mood and carries a message for those who visit.

Where did everything start? When the current school principal brought a few old suitcases for storing various works and teaching aids. This "junk" was not well received by the former principal, who ordered to remove them, but their owner was firm in her stand. When she herself became principal the school started to be gradually filled with more souvenirs, renovated furniture, old-fashioned pottery and handicrafts. School teachers, parents, pupils - everyone gradually joined the work on the space and everyone felt a little like the host of this place. First, they involved teachers, who together with the management came up with educational events. In each one of them it was necessary to take into account the arrangement of rooms and spaces in school. The pupils were involved in the work through participation in the restoration of equipment that appeared in the school. And so every old object or piece of furniture was cleaned, painted,and decorated by the school community.

Thanks to the joint efforts the corridors turned into different, magical places: a street, a theatre, a sports Olympus, a place of family walks. One of the most interesting places was a colonial store where we got to know oriental scents and flavours. We talked about spices brought to the school from different parts of the world. The furniture is painted in African motifs - you can sit at a table, talk, eat, drink tea. School corridors lead to many surprising places - we can visit an old kitchen (where pupils learn to prepare meals), a rural pharmacy with homemade drugs or a miniature zoo. There is also a forum with meetings with interesting people, as well as the so-called barn, where larger gatherings are held like music sessions, poetry reciting or book reading. The cellars are used to exhibit elementary school and high school pupil's art projects. Pupils can place their works, photos and creative projects on boards.

Parents and all school friends know that the school collects various items, so we are always receiving a lot of souvenirs. Today, this collection consists of a few hundred objects adorning the school corridors and crannies. What is interesting, although many of them are very fragile, somehow in this dynamic school space things don't get destroyed. Maybe it is because at home also no one destroys their decorations and souvenirs?

Space arrangement has a significant influence on pupils. Most of them definitely like their school. Here they feel important and safe. They acquire an aesthetic taste and establish relationships with other people. They take responsibility for what surrounds them. The quality of the space in which pupils spend time also affects the education process - children will learn more e.g. about theatre, when the lesson takes place in the space reserved for theatrical activities, about the world and travels, when it's the place itself that tells the story; about nutrition, when the class takes place in an old kitchen. Even reading to children when the teacher is sitting in a rocking chair, and they are sitting on a soft carpet, has a deeper meaning and value.

Good advice

Do not be afraid to think of the school as a second home. We all need to learn to take responsibility for what surrounds us and the school is a good place for such a lesson. Changes at school are planned together with other teachers and parents. The power of good changes lies in the strength of the team and the community that makes a school. Therefore we shouldn't necessarily look for inspiration in others. The solutions that have worked in other schools do not need to fit ours. Usually anything that is ours, that arises from our thoughts works better and is better tailored to the needs of our environment.

It is worth surrounding yourself with objects that will serve a purpose. Let us try and give them meaning

and see to it that everyone gets it. The school space should be adapted to a common view of the world, culture and needs. Do not worry when something goes wrong. Taking up common endeavours at school is a big success itself.

TIME: to create a good atmosphere in the school is a project that will take years. Our school is in this continuous process since 1994

FUNDS: low-cost project or resources from EU grants and funds

RESPONSIBILITY: school principal as the leader of change, teachers

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The school space can be organised as the space at home - in the end pupils spend there a lot of time. The emphasis is on the aesthetics of the rooms and the comfort of pupils.
On the picture: activities with children in an old kitchen in the School Complex in Rodowo Małe.
Photo: School Complex in Radowo Małe, Poland

THE PUPILS CHANGE SCHOOL SPACE

Pupils spend several hours a day for at least ten years locked in the school. A comparison to jail is probably justified in this case. Let's take a look at our school's buildings. Narrow corridors, closed doors, the "guard" at the door, classrooms resembling prison cells. Even to go to the toilet the consent of the teacher is required. How can we ensure that pupils feel at home in such a space?

ANNA GRODEK, PIOTR KOZAK
Maria Skłodowska-Curie School in Sopot, Poland

We wanted the pupils to have a place in school where they would feel at home and feel responsible for it. How can this be achieved? Instead of pushing the pupils to fit in the school's spatial constraints we decided that we would offer them space for themselves to organise. We wanted to give them a place that would suit their needs and for which they would be responsible.

We are a typical Polish school. The only thing that makes us different is that some of our pupils follow an art school curriculum. Till 2-3 p.m. they have lessons in general subjects and after that time they stay for art curriculum lessons. Sometimes they finish school at 6-7 p.m. It was this group in particular that insisted on having a space in the school which would be something between a school and a home, and that would belong to them. They wanted it not to look like a traditional classroom. We decided to make use of a room which, when I started working at the school many years ago, was a storage room for all kinds of objects. It was used for storing easels, carpet remnants collected for years, ladders, teachers parked their bicycles there during class time, in other words there was everything.

The space consisted of two rooms. A larger one, transitive, which one can access from the school auditorium (a place open and available for pupils during breaks as it was an extension of the corridor, except for school celebrations). And an adjacent smaller room. The artists-pupils came out with a proposal to adapt this space for their own needs. The school's atmosphere (Individual Curriculum High School) fosters such ideas. After obtaining the Principal's consent they started cleaning. It started with a sofa, a cupboard and an electric kettle. Later, they added other equipment. With time, the school was able to get funds from the Ministry of Culture. Then computers, specialised designing and animation programs, digital cameras, lenses, lighting, graphics tablets and other equipment was purchased. Each year in the school there is a group of students interested in photography that do not necessarily participate in the art school program. This space was gradually completed with new elements. For example, the adjacent room was turned into a darkroom with a second computer.

What is important is that this space belongs to the pupils. It was because of their interests that the rooms have adopted the character of a photographic studio. The place serves students for informal (after-school) individual or group work. They come here to do their projects, finish homework, use the two computers, process the photos, create videos.

There are pupils that are bound to this place, who come only for tea or to talk with their peers. Others use the table to design and make large-format and other types of art projects. Regular painting classes

are held in the other room as it has access to sunlight. Some pupils, however, prefer to finish their works at lower light, but behind closed doors. Students have free access to the rooms. They collect the key and pass it to one another, as long as there is someone who wants to use the space.

The rooms are not subject to anyteacher-guardian supervision. It is there exclusively for its users. None of the equipment is not kept under key, yet nothing was lost. Pupils clean the rooms. Why was it important for me to observe the life of this place? I started believing that there is no better way to teach responsibility than by treating pupils as responsible persons

💡 Good advice

At this stage it is worth choosing the elements of the space that can be prepared by the pupils themselves. In our case it was the shelving made of fruit boxes. There's always something that can be brought from home. One of the teachers brought a couch. Students brought an electric kettle and a wardrobe. If we give the students a room in use, let's set general rules, but leave the organisational details in the students' hands (especially if we are dealing with high school students who are almost adults).

TIME:
the preparation of the premises does not take a lot of time. But then the space is constantly changing. Each generation adapts the room to their needs.

FUNDS:
small or medium investment

RESPONSIBILITY:
students, parents, teachers, principal

Pupils feel uncomfortable in the school space. We would like to make them feel like home. What simple measures can we take to make it happen?
Photo: Anna Grodek

HOW TO CHANGE THE LEARNING ENVIRONMENT IN A SCHOOL BUILT AGED 50+?

Schools built 50 years ago are not easy to upgrade. They are buildings constructed in another era, with other social and economic needs in mind. They were truly designed as "graduate production plants". These buildings are usually relatively large and unfriendly buildings, and barely accommodate all the pupils, acking space for activities other than traditional classes. How to face such a challenge and fit all the pupils in a reduced space while providing them with a good atmosphere and learning conditions?

MARTA PUCIŁOWSKA

Secondary School Complex no. 2 in Wejherowo, Poland

The Theodor Bolduan Secondary School Complex is located in a typical building from the 1970's in the biggest housing estate in Wejherowo, the Kaszubskie estate. Both the estate and the school were built at the same time, in 1978. The educational centre and the surroundings are similar: a few storey blocks decorated with pastel colour stains.

This school complex is unusual as it includes a preschool, a primary school and a high school. The division of space in a way allows younger and elder pupils to learn and grow, but is a challenge, especially since space is limited. The facility, originally designed to accommodate a maximum number of 960 pupils is now attended by 1060. This number falls short in comparison with the 1780 pupils in the school year 1984/85, when classes lasted from 7.30 until 19.00, but still it is hard to fit all.

The school not only organises compulsory classes. In the complex in Wejherowo there is always something going on: there are a lot of extracurricular activities and clubs, a vocal group; we also managed to find space for computer rooms, for meeting with the school counsellor and catching up. The pupils are very active, they carry out ambitious projects - you can read about them in the school blogs or visit the Szkoła z Klasą programme platform. One can have the impression that all the things that happen in the school have no way of fitting there.

Kids feel like at home in the Wejherowo school. This is the visitors' first impression. The school is their place, they move freely through the space - they visit the (always open!) principal's office, they play jump rope during the breaks, read books on window sills in the cafeteria outside lunch hours. No one drives them off, nobody reprimands them and no one suggests that there are places at school were they might not be welcome. In the part hosting the primary school, classroom names were invented by the pupils.

School management and teachers are always looking for new places that could be available for children to study and play. Every storage room, back-office, nook and corner and other hidden school spaces are discovered, slowly taken over and adapted to the needs of the pupils. During my visit to the school my guides were the eight year old Mateusz and his class educator Weronika Adamska. We visited, among other things, the room where the compensatory classes were taught. In the small room there was a table and a few chairs. The room was hidden behind a few turning corridors. It would have been hard to get there without guides.

Upgrades to the old-fashioned facility are implemented step by step. When the funds for larger works are lacking, small improvements are made and, as the teachers say, because of them the school looks like a different kettle of fish, with some parts new. But they also mean that the management does not give up in the battle to make the space more modern and to respond to the needs of the school community. You can see this clearly in the basement which, as usual in this kind of buildings, hosts the cloakrooms. Here all pupils meet. High school students leave their things and go towards their wing, to the left, while the stairs on the right side lead up to the primary school part. Elders can already enjoy their new, blue lockers, younger pupils still use the pits, which are not really much different from those we know from our own childhood. The plans include rebuilding the changing rooms for primary school pupils as the next improvement, as soon as there will be funds.

Good advice

Even if the school's issue is not having enough space, it is worth trying to find it, and then leaving these new "recovered" places in the hands of the students. They should feel that at school they are not intruders, that they are at home, then even the architectural imperfections will no longer be a problem that you can't overcome. You can start from the simplest changes that will improve the daily operation of the school and it's atmosphere. One of the easiest ways is a painting and decorating the hallways and classrooms. In this case, to work together, you can successfully engage both pupils and their parents.

TIME:
modifications in schools from the 1970's are a continuous process. You need to make changes that respond to arising pupils' needs.

FUNDS:
a small or average investment

RESPONSIBILITY:
students, parents, teachers, principal

How to give students space? You can do it gradually, by searching for nooks and crannies with no specific purpose. The photo presents a conversation space created in the corridor of Primary School no. 143 in Warsaw. Photo: PS no. 143, Warsaw, Poland

CHANGING THE SCHOOL SPACE TOGETHER – THE SCHOOL COMMUNITY POTENTIAL

What constitutes a visible problem as well as a challenge in schools is students' insufficient ability to cooperate. Modelling the educational space of the school is a good moment to stimulate cooperation among them. The school space could also be changed in a way which supports the learning process, both individual and in groups.

AGNIESZKA CZACHOWSKA

Canning Street Primary School in Newcastle upon Tyne, UK

The school in Newcastle was built in the 1970s, as the so-called open educational space, used with much success in hybrid methods of teaching. However, later on the space proved to be insufficient and led to limitations in learning, e.g. due to the limited surface of separate "class bays". This is why the entire school was refurbished and re-opened in August 2008. But the goal of the introduced changes was not just expanding didactic surfaces. The interior was to be remodelled as well, in order to better suit teaching methods applied in the school. It was not only about the architecture. The main thing on our minds was teaching.

During the renovation works everything was rebuilt, from top to bottom. The school was equipped with modern equipment, furniture and computers. The area surrounding the school was rearranged as well, and a row of roofed spaces was built to allow students to learn outside. An open-air gym was built, as well as a vegetable and flower garden.

The renovation resulted in larger classroom surfaces, additional spaces for music and theatre classes, and a separate gymnasium which had previously been a part of the main hall. Interiors retained their open-space plan. Each educational space is separated by low rows of shelves and screens used as partitions, thus creating "classroom bays". In the centre of the plan there is a common space, used by all classes in a variety of ways.

The most important changes were introduced in the way of teaching. The form of open and half-open spaces facilitates interactions between students of various ages and cultural backgrounds. The school carries out individual and group classes. Maths and language teachers use their own "classroom bays". For the remaining subjects, the class is divided into smaller groups of students, engaged in activities that involve both the "classroom bay" and the common space.

Only seemingly does this lead to chaos. Everything is organised with one principle in mind: "let's allow the children to think!". Various methods of inquiry are allowed. It suffices to give the students the freedom to think and access to the tools which enable achieving their goals. In this respect, the space should support students in their quest, and not constitute an obstacle.

What did this change give us? Now students can improve their group work and problem solving skills. They can also listen to others and take into account other points of view. The open space of the school becomes popular among the teachers who can work together and learn from one another.

💡 Good advice

Firstly, do not be afraid to engage students and teachers in planning and modifying the school space. Allow them to influence the future shape of the school. Let us remember that people who know the most about the school are those who learn (or teach) in it. Secondly, if we have changed something in the space, it was not in order to remain sitting still. The environment should be designed in such a way that standing up from the desk is easy – students should be free to move around the classroom or the open space. We should also create as much space for collaboration as possible..

🕐 TIME:	▭ FUNDS:	✋ RESPONSIBILITY:
comprehensive refurbishment of the school took 4 years	high cost – construction investment and equipment replacement	local authorities, school principal, students and parents.

The Newcastle space is open and flexible. In this way, it can be adapted to various forms of activity. Photo: Agnieszka Czachowska

ENVIRONMENT-FRIENDLY SCHOOL BUILDINGS

If we want the school to effectively foster environment-friendly attitudes, we should make the school building itself as sustainable as possible. An environment-friendly building will naturally encourage teachers and students to take up various green initiatives and stimulate appropriate attitudes.

MARCIN POLAK
Primary School in Budzów, Poland

The school in Budzów is an example of a successful investment in a small, sustainable and low-maintenance school building for the inhabitants of the rural commune of Stoszowice. In this case, the technology of passive construction was used to minimise the loss of heat and maximise heat gain. The school in Budzów is an energy-efficient building of the latest generation. It does not use traditional heating methods, such as coal or gas-powered heating popular in

Poland. It uses heat generated by its users and devices working inside (heat pumps). Alongside economic benefits (low maintenance cost), ecological aspects (reduced CO_2 emissions) were also taken into consideration in the design process.

The building was positioned on the plot of land in such a way as to maximise the use of solar energy. The distinctive feature of this school is the use of

the so-called brise-soleils, which disperse the light shining on the windows or the glass facade to prevent the building from excessive heating up. Another very important device is the heating pump with a ground-coupled heat exchanger, which provides heating for the building in winter and cooling in spring and in the summer. In a passive building, windows are not opened and air circulation is provided via a mechanical ventilation heat recovery system. Each hour, 70-80% of the air inside the building is replaced so students and teachers breathe clean and fresh air in classrooms all the time. Measurements and scientific research carried out so far indicate that the micro-climate in the school is very good, and such organisation of air circulation works in favour of the students (they get sick less and they are not sleepy during classes).

The architectural project took into account the need for a functional layout of the rooms. The ground floor is for function and social rooms: cloakrooms, cafeteria, after school room, administration, staff room, small gymnasium, speech therapist's office

and bathrooms. On the first floor, there are six classrooms as well as bathrooms. It is a rural commune school attended by a small number of children, but it now provides for all educational needs of the commune (which has also one external branch of the school). The building has been adapted for the needs of persons with disabilities.

The building's sustainability also influenced the character of school activities. From the very beginning of its operations, the school organised environmentally-conscious educational activities. Students plant their trees, regularly participate in "clean up the world" initiatives (Earth Day) and organise electronic waste collections in the commune. The school obtained the certificate of a Local Centre for Ecological Activity, and was awarded a Green Flag certificate in 2014. These initiatives often go beyond the framework of school teaching activities, and reinforce the school's position in the Budzów community, building new bonds and cooperation with NGOs, cultural organisations and local authorities.

Passive construction of school buildings can mean a reduction of maintenance costs for the communes, as it dramatically lowers expenses related to heating and electricity consumption in the school.
In the picture: Primary School building in Budzów, Poland. Brise-soleils ("sun breakers") deflect sunlight shining on the windows.
Photo: Marcin Polak

Good advice

When local authorities (commune or district) plan to build a new school, it would be beneficial to convince them to invest in a more modern, sustainable school building. The cost of the investment will be slightly higher (10% or more by approx) than in the case of a traditional construction, but the cost of maintenance will be lower. The quality of air inside the school is of no small importance – a feature disregarded by most schools. It would be advisable to benefit from Budzów's experience and gather arguments in favour of such an environment-friendly investment.

TIME:
up to 2 years (tender proceedings and investment)

FUNDS:
high cost, a large investment for the authorities responsible for running the school

RESPONSIBILITY:
authorities running the school, architect, necessarily the principal and teachers of the future school

LEARNING SPACE OF THE CLASSROOM

YOU WANT CHANGE? START WITH DESKS

The arrangement of classroom desks in rows, all facing forward, is convenient usually only for teachers who have a clear view of the class and just "impart" their knowledge to students (or so they believe). The arrangement of desks in the classroom determines the mode of interaction between the students and their teacher or their classmates. Such interactions enable us to learn from one another. So if we want to improve the quality of teaching, we should try and adapt the desk arrangement in the classroom to the nature of activities. There are many possible layouts, but it would be best to test which configuration is the most conducive to learning. If there is really not much we can change and improve in the physical learning space of our school building, we should at least try to introduce changes in our classrooms and give our students the opportunity to learn better.

MONIKA WOJTECZEK, MARCIN POLAK
Public Primary School in Ostojów, Poland

Rich learning environment of the classroom means a flexible space, with equipment which can be configured in a variety of ways in order to stimulate diverse modes of student work: individual, in pairs, in groups, or as an entire class. And despite the phrasing, we do not mean costly equipment, such as new educational technologies (although these should also be available to students and teachers), but the most basic items: desks and chairs.

To start off, it should be clarified that rearranging desks in a classroom is not a universal remedy for all predicaments concerning the quality of teaching. It is a change which must be combined with the modification of the way lessons are conducted. For instance, if we sit the students at group tables, but the teacher continues to use the frontal style of teaching, nothing will change. The situation could even deteriorate, because students in groups will be bored and it will be easier for them to talk to one another about things unrelated to the lesson; a similar danger awaits if we remove desks from the classroom altogether. The rearrangement of desks in the classroom must therefore be a deliberate choice on the part of the teacher, which stems from their didactic preparation and a plan for a particular lesson. Although we are discussing desks, by extension, we also mean the teaching mode – these two issues are interconnected. We devote more attention to this topic in chapter …

In the Primary School in Ostojów, teachers are encouraged by the principal to use various teaching styles. Each teacher has the opportunity to organise their classroom in the most suitable way for their students and their needs. There is no standard recipe, and at the same time, the arrangement says a lot about the way the teacher wants to conduct lessons. Sometimes the arrangement of desk s changes within the hour. It all depends on whether we want the students to be able to communicate with one another, or to work on their own. Arrangements in a circle, a half-circle or a horse-shoe are conducive to a friendly atmosphere which results from easy eye-contact between students (in classes where e.g. discussions dominate, and we try to engage all members of the class team equally). The arrangement of desks in small groups is most beneficial for the groups' focus on a task, and for communication within the group.

In many schools, at the end of the day the maintenance staff arranges desks back into neat rows. It does not happen in this school – instructions were issued to leave the arrangement chosen by teachers and students.

In several classrooms, apart from desks there are also armchairs. Their presence in the school aims at the promotion of reading. If the teacher reads to the students (or one of the students reads to their classmates), they sit down comfortably in one of the armchairs and the listeners sit down close by. Thus, a reading from a book turns into a pleasurable ritual.

Good advice

It is very important to make sure that the desk arrangement is not a distraction for students, and they do not need to look around to find the teacher. Group arrangement suitable for teamwork is beneficial when work in groups is planned and the students do not need constant eye contact with the teacher. By supervising each team, the teacher becomes an observer who monitors their work, and his or her activity is increased.

Let us also remember that the desk affects the awareness of the roles each student has within the class team. In the early grades, the student sitting in the front of the class feels favoured, and the one sitting in the last row may feel inferior, "forgotten" in the back. This is why we usually arrange desks in a half-circle, a horse-shoe, or an L shape, to have equal eye contact and physical access to each student.

TIME: several hours or days

FUNDS: no cost

RESPONSIBILITY: teacher, principal

Improving the quality of teaching starts with the classroom, in which the arrangement of desks should be best adapted to the nature and purpose of a particular class. We should allow the teacher and students to consciously shape the learning space.
Photo: Marcin Polak

CLASSROOMS STIMULATING TALENT DEVELOPMENT

From the outside, the building can be easily described as a typical Polish school. However, right after crossing the threshold we can see that although this is a publicly run institution, it differs significantly from other schools. Not only due to the beautifully arranged interior with hundreds of items on display, handicraft and antique furniture (the result of student projects as well as teachers' and principal's enthusiasm for collecting interesting objects). In a way, also students are different, because this school stimulates their diverse hobbies. For instance, during breaks they walk on stilts or play 'keeping shop'. What makes the school in Radowo so different from others is not colourful decorations and trinkets, but the idea for the school, in which the space plays a very important role.

PIOTR KOZAK
School Complex in Radowo Małe, Poland

If there is anything really true to be said about education, it is certainly that every school is different, because in each school children are different. So there cannot be a single curriculum or one-fits-all solution perfect for all the schools. Each curriculum has to be adjusted to local conditions, needs and interests of the students. Even in the most challenging social environment, it is better to inspire than force them to learn.

The starting point for the change in the Radowo Małe school was a simple observation: students learn the most through play and various "learning situations". Sums can be learned at a school desk,

but also while playing or shopping. Language skills can be improved by dictation, but also when travelling the world. The challenge was to organise all those things in a school building.

Can students travel the world during one lesson, and make stained glass during another? Why not? In our school, classrooms are less and less traditional-looking. In their place, we have thematic classrooms, e.g. a kitchen classroom, a travelling classroom or a theatre classroom. And these are no ordinary rooms. It would be a mistake to assume that the kitchen classroom can be used only for learning how to cook. These rooms serve as a place where each student can be immersed in the world of science. What does that mean? For instance, that maths can be learned also in the kitchen while preparing your favourite dish or baking number-shaped cookies. Geography can be learned while travelling around the imaginary world in a thematic classroom, and Polish – while playing out scenes on stage. Thus it is possible not only to develop several competences simultaneously, but also to learn to work together.

In order to create various thematic classrooms, we have transformed not only didactic rooms, but even former utility rooms in the basement or tool storerooms. We wanted the children to be able to try everything. Thanks to the dedication of the arts teacher, they can bake pots in the pottery class. In the bookbinding room, they can make their own paper. But, most importantly, they can touch and feel everything on their own. Thus they become emotionally involved in learning, and it makes the process itself much smoother.

Good advice

We cannot stay still. Our school is constantly changing and this is how we should approach the organisation of the school space. The process of creating subsequent classrooms is still ongoing and spread over the years to come. Teachers bring in obsolete furniture. Parents donate cupboards, cabinets and armchairs they do not need. Only seemingly does this lead to chaos. It is important that all these elements contribute to the image of a friendly, welcoming learning space. We should not be asking what to do with the space. Instead, we should ask what and how we want to teach in the school. Let's give free rein to teachers and students. Let them realise their passions. In this way we will stop seeing unused spaces, and start seeing opportunities for development.

TIME: we introduce changes gradually, but continuously, moving forward in small steps

FUNDS: it is possible to do it at no cost, preferably with the help and involvement of the parents.

RESPONSIBILITY: principal, teachers, parents and students

In the previous decades all classrooms in the school were almost identical, even if they were used for teaching different subjects. This needs to end. Let's create classrooms which are connected to real-life situations. Photo: School Complex in Radowo Małe.

FLEXIBLE CLASSROOM SPACE

The customisation of teaching, which we so often seek in our school practice, is closely related to the flexibility of the teaching space. It should be versatile enough to allow conducting diverse lessons with students and stimulate diverse activities during the lesson. It is not necessary to demolish any walls to make the classroom space more flexible. We provide details and solutions which will make the classroom better adapted to the individual needs of the students.

MACIEJ SIUDA
Primary School no. 3 in Suchedniów, Poland

Primary School no. 3 in Suchedniów used to be just like all the others. A traditional class layout, desks in neat rows. Potted plants on window sills. Such a space has obvious advantages: it is perfect for keeping wall ferns…

It would be a cliché to state that classrooms should be adapted to students' individual needs. Not all the students managed to adapt to the required strict discipline and the results of those unadapted were worse than those of their classmates. It was not just the issue of those students, but also the issue of the way they had been taught. The way in which the classroom space is organised affects the teaching style. A lecturer-teacher standing in the centre of the room, trying to establish discipline – not all students readily accept this style of teaching.

We have wanted to do something with the classroom space for a long time. Usually it would end as it always does: with replacing desks and repainting the walls. That time we decided to approach the issue professionally. Above all, we wanted to differentiate the classroom space in order to make room both for individual and team work. The first step was to throw out potted ferns…

We decided that the "transformed" classroom would have two distinct educational zones. The first zone was to be a microcosm created for the students, a space with various nooks and crannies, inspiring to inquire, and allowing for individual learning at any time. The second zone was supposed to be open, calm, stimulate concentration and be easy to freely rearrange (team learning).

A child-sized opening was made in the partition separating the two zones. The second opening between the two zones had proportions suitable for an adult. It is a symbolic connection between the children's world and the adult world. The smaller room, designated as a students' zone, seamlessly connects with the larger one. Both zones are constructed from different materials. The smaller was entirely laid with plywood, creating an interior which gives the sense of security, supporting better concentration. The abundance of the created micro-spaces enabled each student to find their own place for learning. Moreover, holes of varying sizes were drilled in plywood panelling at different heights, adapted to children's heights. Books were stacked in the recesses of the walls. As a result, students are surrounded with literature and have direct and unlimited access to it.

Plywood partially goes beyond the room, into the corridor. The lighting was replaced with elongated lamps fitted in the ceiling, whose placement ensures uniform lighting for the entire large classroom, which enables to arrange desks in any desired way. In addition, point lights in the form of hanging bulbs were installed in the smaller room, to allow lighting for more closed spaces and create better conditions for reading and learning.

As a result of the renovation, the way of thinking about the school and meeting students' needs has changed. Students were given space which until then had been controlled exclusively by teachers. Trust in students has increased.

Good advice

We should remember that what happens before the refurbishment of the classroom starts is much more important than the construction works. If possible, we should use the architect's help. But we should also remember that the architect is only the executor of the idea which should be developed together by the principal, teachers and students (parents). Such a classroom will better stimulate the development of each student's individual personality, as well as its application in group work.

TIME:
about 2 months were needed for renovation and redecoration in the summer; this was preceded by designing changes (about 1.5 months)

FUNDS:
investment costs depend on the type of changes we want to introduce

RESPONSIBILITY:
school principal, teacher, designer/architect

Even in an ordinary classroom in a public school it is possible to design solutions which will increase the flexibility of the teaching space and enable students to learn in a diverse educational environment. The important thing is a well thought-out plan for the changes, consulted with future users of the room.
Photo: Maciej Siuda

THE SPACE STIMULATING CO-OPERATION OF STUDENTS

Students and teachers in schools implement projects of their own and participate in those organised by NGOs, schools and other entities. The basic benefit resulting from projects is gaining more knowledge on a particular subject, and expanding particular skills (usually projects involve practical tasks in which we apply the acquired knowledge). The essence of the projects is always students' cooperation within a team. This can theoretically happen in any place in the school as well as online, but it would be good to provide a place in the school where students could meet, discuss and plan collaborative project activities.

MARCIN POLAK, MARZANNA WOLSKA
Middle School no. 24 in Wrocław, Poland

Educational projects in the school space can be carried out in regular classrooms and online. Here we will focus only on the physical aspect of the space. The project method requires working in different configurations – usually in teams of several students responsible for particular tasks. The room where students meet and collaborate on a project should therefore enable them to work in groups and access various tools useful in planning (Wi-Fi network, flipcharts, boards, tables, etc.).

The principal of Middle School no. 24 in Wrocław decided to invest in creating one room arranged in a different way than traditional classrooms and devoted especially to project work. The school implemented an innovative idea. They introduced the idea of "project Fridays" – each Friday various classes hold activities related to projects invented and carried out by students.

The new classroom was designed in cooperation with IKEA, which worked with the school on equipping the room. The projector displays presentations on one wall, while the wall opposite was used to hang two giant (floor to ceiling) dry-erase boards (black and white) for making notes and mental maps. This is where students can brainstorm, draw up the project schedule, etc.

Workstations were also taken into account. Students can sit at desks arranged in a horseshoe and in the middle of the room – they can relatively easily talk to one another, consult and create various configurations for the group work. Beanbags purchased for the room can be moved around. If necessary, tables can also be rearranged. Any extra aids and flipcharts can be stacked against the back wall. Students were provided with Wi-Fi access in order to use online resources in their project work. Not everything could be purchased at once (limited financial means), but the classroom is being gradually equipped with new elements. As a result, a very interesting and versatile learning environment was created and students enjoy using it.

💡 Good advice

The project classroom is an active learning space – it's not just about the pretty interior design. If we want to create a student-friendly space which stimulates their cooperation, then from the very beginning we need to pay attention to the premises of the group work (mobility, "soft zone"), learning styles (visual learning is dominant, so a decent visualisation of the work is required, alongside an appropriately interesting colour scheme for the walls), quality of the equipment, IT infrastructure (we work using the WebQuest method, so fast Internet is essential). Creating a project room is a good incentive to launch thinking about the learning space in the school. Setting out to work, we asked the students to help with designing the room and we invited them to collaborate on the realisation of the project – and this is the approach we strongly recommend.

The space which supports project work should be more flexible than the traditional teaching classroom, and contain tools which stimulate cooperation between students.
Photo: Marcin Polak

"QUIET IN CLASS!"

We need to improve formative assessment and communication in the classroom. What are the critical factors and are there any smart steps we can take in order to move forward?

FRIDA MONSÉN (RAU)

Working with formative assessment has proved to be the key to success in our schools. The problem for many teachers lies in the demands placed on their time by written formative feedback, time that it is far from certain is well invested. Many pupils have a tendency to primarily look at the results in the form of points or grades instead of reviewing written formative feedback intended to advance the learning process. During recent years researchers such as Williams and Hattie have changed the way in which we relate to formative feedback and to a great extent provided us with strategies for formative teaching. Feedback then becomes an integral part of the lesson plan and it is by no means necessary for it to take written form. This in itself creates demands on both the design of lessons and the environment in which teaching takes place. Many of the key strategies used by Williams for learning assessment require a flexible environment that encourages communication. The teacher needs to be able to activate pupils as a learning resource for one another, through activities that create discussion and stimulate pupils to ask questions. The majority of classrooms in ordinary schools are not designed for this type of teaching.

"In a traditionally furnished classroom I have only one alternative and that is to silence the pupils, quiet in the classroom becomes the watchword," says Linnea Sahlin, 4th grade teacher at Slättgårdsskolan just outside Stockholm.

The traditional classroom is built around one-way communication modelled on the church's raised pulpit. This is a format that does not favour a form-

ative approach. By breaking free of this structure the teacher is freed from their static position in front of the whiteboard and it becomes natural to move around the room among the pupils. Examples from schools such as Fjällenskolan have shown that at first this can lead to difficulties for teachers in finding their new role, but that in the long-term both teachers and pupils find that it becomes more common to enter into dialogue linked to the lesson.

Within the environment Linnea has created for her pupils at Slättgårdsskolan there are a variety of different possibilities for organising lessons to ensure that communication remains a central component throughout the teaching process. At the round tables designed for group discussion, it is easy for Linnea to glide between the different groups and catch whatever is happening. The digital tools also offer the opportunity to record discussions. Meaning that she doesn't need to be physically present everywhere at once.

In the specially constructed tiered seating with room for 60 pupils, Linnea is able to begin a task by using the projector to allow pupils to do a quiz or answer a questionnaire in order to take stock of their prior knowledge and highlight the goals of their work. Based on this she will then adapt how she organises the lesson. Some pupils may need to sit near her in the more secluded area with sofas and cushions in order to receive more frequent feedback. Those pupils who have already grasped the material and are ready to begin the task sit at the separate study places beside the window while a group who have

shown that they face a similar challenge in taking on the task can sit together at one of the group tables outside, where they can discuss how they can find a way to move forward.

Digital learning environments, such as GAFE (Google Apps for Education) or O365 (Office365) can also complement the physical learning environment in paving the way for formative feedback. This gives teachers and pupils more freedom by allowing the teacher to exercise a presence even when physically far removed, yet still able to ensure that work is progressing. The teacher can choose whether they wish to interact and provide direct feedback or wait until the pupil requests their input.

With a school environment that is conducive to discussion, a shared digital learning environment in which everyone feels secure and smart organisation of teaching based on pupils' needs, we have all of the necessary prerequisites for successful formative assessment.

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School with Class 2.0 resources. Photo: Jolanta Mleczak

LET STUDENTS DECIDE

We should try to involve young people more in the school life, support student self-government and help to shape their responsibility for themselves, others and the shared space. Let us begin with places closest to them. We should see to the integration of students with the classroom where they spend the majority of the school day. How to include students in co-deciding about the classroom space? What can we gain from it?

MICHAŁ KANIEWSKI
Wanda Błeńska Non-public Middle School in Kowale, Poland

Students are rarely asked the serious question – do they like the classroom where they spend most of their day? At most, they are allowed to decide on wall decorations or other details. If we are serious about the idea of school self-government, we should think whether students can really say that the classroom is "their own space". Can they really express their needs there?

In our middle school we decided to give sophomore students the ability to co-decide about their classroom. We wanted it to be a place where they can learn comfortably and we wanted the conditions to be better adapted to their needs. But first, they had to identify these needs themselves, and then discuss them with teachers and put them into practice. The students were very enthusiastic about the perspective of change. They identified four areas for possible modification: walls and decorations; desk arrangement and classroom equipment; multimedia tools; and principles for working in the classroom.

After removing everything from the classroom, for several hours students discussed and negotiated the scope of changes. Finally they proposed: repainting all the walls, carpeting the entire room, replacing all shelf racks with hanging cabinets (in order to increase the available floor surface in a relatively small room), changing the placement of the whiteboards, adding cork bulletin boards, removing school desks

(to work just on the floor and window sills), and buying bean bags to sit on. They also requested Wi-Fi access and permission to bring and use their laptops and tablets in class (they had not been allowed to before). The changes were consulted with the class tutor, so that the new place could fulfil the primary educational functions, and the atmosphere of work would not be replaced with a café atmosphere.

Students and their class tutor took a week to repaint the entire classroom, the school installed the carpet and rearranged the furniture according the student project. Students decided to work sitting on the carpet (they introduced a no-shoes policy). The result of this initial phase of changes was a strong integration of the group, satisfaction from the effects of the collaborative work and the feeling of shared responsibility for a classroom (e.g. one of the rules was committing students to caring for the order and cleanliness of the room on their own, and tidying it up after classes).

However, it was more difficult for teachers to adjust to this change. They were under the impression that lessons fall apart – the problem was caused by excessively relaxed positions students preferred. But the greatest challenge was the lack of ability to quickly adapt to project-based teaching instead of the traditional/frontal teaching style. It created some negative emotions and teachers' frustration. On the part of the students, the looser atmosphere made those less

motivated feel released entirely from the obligation to work and concentrate only on socialising.

But the changes did not stop there. Quite quickly the students noticed that the lack of desks is detrimental, and it affects their working comfort (and causes back pain). After only a week first students decided to bring in their single desks. After some time, the rest followed. Currently each student has their own desk in the classroom, but their arrangement is supposed to leave as much free space as possible in the middle of the room and by the walls, for the collaborative work on the floor (if they want to work together). Now the students decide themselves how to place desks to achieve an arrangement which is the best for them. Thanks to the carpet, moving desks around does not make any noise.

What benefits of the changes have been noticed? Students admit that now they come to the school more willingly, they feel more responsible for their classroom (they are in charge of the order and decor). The group has become integrated, their relationship with teachers has improved as well (more of a partnership) – the experiment turned out to be a lesson in cooperation and working together

to discover solutions that are satisfactory for both sides. The change has also affected the teaching process – teachers were forced to give up the methods and teaching styles they were used to, and look for new solutions. Even if the change disrupted the learning process for a time, they gained the opportunity to discover new methods. Another important aspect is the fact that now students feel much more like collaborators and co-creators of the teaching process and they try to determine educational goals together.

Good advice

Every teacher can introduce such a change in their class. But they should develop the mode of working which is best suited for a particular subject. It must have a clearly stated purpose to which everyone in the class must agree (which needs to be often invoked). The most important thing is to give yourselves time for the change to take effect: students, parents and teachers – everyone needs to get used to it. We should not be afraid of such an experiment – the benefits are clear and the change can have a positive influence on the learning process.

TIME:
several weeks plus additional time to get used to changes and ongoing adjustments

FUNDS:
approx. PLN 6,000. In each case the cost depends on the planned scope of changes.

RESPONSIBILITY:
school principal, class tutor, students

We want to increase the students' commitment to the functioning of our school. We are focused on the spirit of integration between the students and the classroom as a place where they spend most of their day. How can we involve students in co-deciding about the physical aspects of the classroom space?
Photo: Michał Kaniewski.

A CLASSROOM FOR A SPECIFIC SUBJECT ?

A large majority of European schools was built several decades ago, according to similar construction concepts. Their common feature are classrooms with closed doors, accessed from long corridors. Schools often try to make classrooms for particular subjects more distinctive, following their educational purpose. The interior decor is a special way to encourage students to participate in the work.

MARCIN POLAK, IZA WYPPICH
Comprehensive Secondary School Complex in Wodzisław Śląski, Poland
Comprehensive Secondary School Complex no. 1 in Ruda Śląska, Poland

There are as many ideas for classroom arrangement, as there are schools. It is of course worth the effort to make the classroom aesthetic for the students, so they can simply enjoy spending time in its space. However, we should note that information society in which we live daily distracts us with the overflowing of visual stimuli. So maybe a classroom should be organised in a way which maintains a sort of minimalism with regard to decorations, so as not to distract students even more. "The most beautiful decoration in the classroom should be the student," says Joanna Piasta-Siechowicz, the principal of the Primary School in Ostojów (Poland).

Good examples of this approach can be found in classrooms of the Comprehensive Secondary School Complex in Wodzisław Śląski, where the only and thus dominant decoration is what has been placed on the walls. In this case, the idea and its aesthetic execution are important, but the most essential is the broader concept of didactic spaces, which the school principal Anna Białek has been implementing for several years. For instance, the Polish language classroom is decorated with an image of a linden tree, the symbol of the eminent Polish poet and one of the most important writers of the European Renaissance, Jan Kochanowski. The wall opposite features the image of the Kochanowski Manor, an important motif in his poetry.

A similar approach was applied in the foreign languages classroom. In this case, a photography wallpaper was used, together with suitable quotes selected for the silhouettes of young people displayed on the wall. They are excerpts from the European Union Hymn in various languages: Polish, English, German and French. There are already twelve classrooms which "break the monotony" of the school, and each is equipped with technologies that support learning. They were not created all at once, but rather one by one, and each time the works started with a thorough renovation (including the replacement of the electrical installation, plastering the walls and new floor), and only then were the walls decorated. Usually these works would take about a year.

Each classroom could be designed to have various types of educational spaces. How to organise classrooms for variety of purposes (e.g. some for learning maths, some for languages, geography, science etc.)

A slightly different approach was applied in the Comprehensive Secondary School Complex no. 1 in Ruda Śląska. In this case, each teacher is in charge of their classroom and has complete freedom in its arrangement. Changes in this school started with the theatre classroom, which held the school theatre and music workshop called "U Starzika" – it was the result of the teacher's fascination for the culture of Silesia and an outcome of the project "In search of the regional treasures."

After that success, a classroom arranged like a café appeared – the outcome of a collaboration between the teachers of French and social studies. The next project was the gallery on the second floor – the arrangement of the corridor space. It was the idea of the Polish language and arts teacher to create a space for students to regularly display their art. In each case, the most important was always the teacher's initiative, then the idea, brainstorming and designing the concept by students and the teacher. Half of the twenty classrooms, as well as the corridor, have already been rearranged.

Classrooms in this school are in 90% the result of the collaboration between students and teachers. Sometimes parents were involved as well (e.g. the theatre classroom), and the assistance of the maintenance staff was invaluable, especially with heavy lifting. In many cases, classrooms (e.g. the regional one) were equipped thanks to the collection of items donated by students' and teachers' families.

As a result, it was possible to create spaces dedicated to particular people and subjects. Working in them is much more enjoyable, and the atmosphere is more pleasant. Students like to stay in those classrooms for breaks in between their lessons. The larger their involvement in the creation of a classroom, the more willing they are to use it. The important thing is also the fact that classrooms are not being vandalised, as students tend to care for them.

Good advice

The rearrangement of a classroom or a corridor is one of the simplest ways to improve an educational space in the school. Aesthetic aspects come into the foreground here, but experience indicates that students prefer spaces which they co-created. Although generally teachers have relative freedom in arranging their classrooms, we should always try to include students in the work, as they will be the ones spending a lot of time in it. It would be good to discuss the idea with them and jointly look for a concept which the majority likes. We can also include parents in the refurbishment works. It would be good if the individual character of the classroom went along with the change of teaching methods and giving up the traditional mode of transmitting knowledge.

TIME:
1 month for renovation and rearrangement of the classroom

FUNDS:
a low cost project. Part of the funds was provided by the school, part by the parents. One of the classrooms was refurbished thanks to the EU funds.

RESPONSIBILITY:
teachers, students, parents

The character of the Polish language classroom is emphasised by elements inspired by Jan Kochanowski and his writings. Photo: Marta Florkiewicz-Borkowska

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SPACE STIMULATING CO-OPERATION AMONG TEACHERS

ORGANISATION OF THE STAFF ROOM

There is a staff room in the majority of schools. It is a special space within the school that teachers create mainly with their work in mind. At the same time it is an indicator of relationships within the school – if it is "off limits" for students (the door is locked with a key or a code), it is difficult to imagine that there is good cooperation between teachers and students in this school. In the space of a modern school, the organisation of the staff room should above all emphasise the dimension of cooperation and good communication. Everywhere – among the staff, as well as in teacher-student and teacher-parent relationships.

MARCIN POLAK
Orestad College in Copenhagen, Denmark
Middle School no. 24 in Wrocław, Poland
Primary School no. 58 in Poznań, Poland

How can we start building the atmosphere of cooperation at school? It seems that it would be good to start precisely from the staff room and the relationships fostered inside. The concept of the staff rooms in the Danish Orestad College in Copenhagen makes a very good impression. It is a public high school where teachers were allocated two rooms. The first one is used for work – there are computer workstations, shelves, cabinets, all devices necessary for teachers' work (copy machines, printers, scanners), office supplies, etc. A large part of teaching tasks in this school is executed through e-learning (students upload their work to the school platform, where teachers grade it). Assigning a separate space for teachers to work was the logical consequence of this type of teaching. This room is not for talking, it is a place for individual work where teachers have the best work conditions to perform their tasks. (Photo 1). Right next door there is another room, intended as a meeting place. This is where teachers are provided with a large space for conversations, staff meetings and subject team meetings. It is a well-lit, spacious room with comfortable armchairs, as well as a conference table for working meetings. As most rooms in the school, also these two have glass walls which enable to see what teachers are doing inside. Although the door to the work room is usually closed, the door to the meeting room is open and the room can be entered (Photo 2). In this school teachers generally have quite comfortable conditions for collaboration, as the architectural design took into account also numerous open and half-open spaces which can be used for meeting and talking.

The staff room serves a double function – on the one hand it is a place of rest, conversation, and meetings for teachers, but on the other hand it should also be a space where teachers have comfortable conditions for both individual and group work. This is why in the Orestad College in Copenhagen there are two staff rooms. Photo: Marcin Polak

The staff room in Primary School no. 58 in Poznań
Photo: Anna Cieślarczyk

Usually, however, schools do not have as much space available as the Orestad College and they can devote only one room for the staff. It is good if it is sufficiently large to become a meeting place. In Middle School no. 24 in Wrocław there is a cross-shaped table in the middle of the staff room, which has space for 20 teachers to work at the same time. There are also two computer workstations and there is still enough space left in the room. Available space in Primary School no. 58 in Poznań did not allow for the organisation of a collaborative space – the staff room resembles rather a cosy café where we meet our friends to talk in a comfortable environment.

There are also schools where staff rooms were eliminated altogether (e.g. Middle School in Nowy Tomyśl). They were replaced by the so-called back-rooms for subject teams and communication and cooperation was moved online and happens in real time (each teacher has a laptop or a tablet, and access to all documents and communication tools). More on this subject in...

We should also remember that for many schools the problem is the lack of rooms where teachers' collaborative space could be organised. When the number of children attending the school exceeds the capacity of the current physical building, the staff room is usually turned into a classroom. Not only does it make the organisation and planning of the school activities harder, but staff collaboration as well.

Good advice

If we really want to think about the school as a certain community of teachers, parents and students, then the staff room should be an open space of relaxation, meetings and exchange between teachers, but also teachers and parents (in the positive sense, it is also a "watering place"). In a school where an e-register has been introduced, "unauthorised access" to the register and other confidential school documents is no longer an issue. We can therefore try to open the staff room and give up the idea of an enclave, an off-limits zone. In this change, an important role will be played by the principals and leaders of teaching teams. They will be essential in deciding whether the more open concept of the staff room is adequate as the place for meeting, inspiration and collaboration. We certainly encourage you to think over the function of this room in the school and its rearrangement.

TIME:
several hours or days

FUNDS:
depending on the condition of the room, possible renovation or investment, e.g. in functional furniture.

RESPONSIBILITY:
mainly the principal and the teaching staff

MERGED CLASSROOMS AND TEACHERS' CO-OPERATION

In most cases classrooms should be considered small or very small if over 20 students stay in them regularly. There are usually not enough common spaces. Classrooms are separated by walls and each teacher shuts themselves off in their own space for the lesson. How can we give the teachers the opportunity to collaborate?

FRIDA MONSÉN

Slättgårdsskolan in Stockholm, Sweden

Slättgårdsskolan looks like any other school. A red brick building in the suburbs of Stockholm is not distinctive in any way. It has narrow corridors with lockers along the walls and traditionally arranged classrooms with rows of desks. Most teachers simply accept this state of affairs and adapt somehow, but not Linnea Sahlin. She is only 25 and she has just graduated from a teacher's training school.

"Right after I entered the class, I was anxious. Everything looked old, neglected. I also don't particularly like the traditional arrangement of desks. It looks like students come to look at the teacher and listen to their words. And what about discussions or other teaching methods?", she wonders.

The first task the teacher took on was cleaning up the room and rearranging the furniture. She moved the desks in groups, brought in mats and pieces of fabric. It looked better, but there was a concern. Linnea Sahlin knew that in the following year the number of students in the class was supposed to increase from 36 to 60. For many, it seemed impossible to reconcile with the conditions in the school, but the teacher had an idea.

"If we removed the walls between classrooms and thus created various teaching spaces which intersect in the shared common space, more teachers and larger classes could use the same space. The positive side effect would be creating the opportunity for cooperation among teachers. Moreover, students would have more diverse spaces at their disposal. Certainly not everyone will be happy with the traditional class layout," she argued.

As a result, the teacher was given free rein in designing the changes. She was supposed to create an open space with a cohesive environment which stimulates learning and could be transformed by shifting walls. In one place, multi-level rows of seats were installed, in accordance with the rules of creating a "campfire" and "show off" learning spaces. This allows for organising screenings, holding lectures and making presentations together. Apart from that, round tables were installed for holding discussions and group work. More isolated spaces were secured for assimilating knowledge and a relaxation zone was created with a sofa, cushions and bookshelves on the sides.

The new look of the room practically forced teachers to collaborate. This, in turn, translated into the necessity of introducing changes in the lesson timetable as well as planning educational activities together. Since then, no teacher can work on their own. All must adapt to the new idea for the "class". The goal was to ensure a diverse environment for students and guarantee that nobody

would be forced into one particular teaching style which is supposed to fulfil the needs of all the interested parties.

The beginning of such a change will certainly not be easy. "When we collaborate and try to work out how to use the new space together, we can see positive results at once. Students have more adults to ask for help, and each day spent in school becomes less fragmented. Various activities can be combined without haste, which provides the sense of calm. However, it is difficult to find the time for planning activities together and sometimes we need to meet on weekends to do that," says Linnea Sahlin.

The principal was enormously impressed by these efforts. But not all the teachers reacted positively to the introduced changes: "Of course, we need to fight the traditional concept of school which exists both in the heads of students and their parents. Some people think that we went mad, that it makes no sense to let 60 students run around the classroom at the same time. They do not listen to the teachers explaining that this makes them work better. Their minds are already made up. However, I am sure that this is the right way. Everything will turn out fine, once we blaze the trail. I believe that classrooms should offer as wide an array of experiences as possible," she says with a smile.

Good advice

One of the greatest challenges for the school is demography. If the number of students in classes decreases, there are usually no problems with the physical space of the school.

The situation becomes more difficult if number is increasing. After all, classrooms cannot be simply "inflated" when more students come in. Removing walls between adjacent classrooms is a decision that requires courage. It changes the concept of didactic activities and such modifications require time, determination and new structures. We could not just demolish a wall but leave the work organisation unchanged. This is not the point. It is necessary to elaborate a transparent plan for actions and opportunities offered by combined classrooms. Such a change is an opportunity to design new places within the classroom space to stimulate various educational activities. The new space should be thoroughly discussed with its users. In this way both students and teachers will have no doubts as to how to use it.

Teachers in my school do not want to collaborate. How to arrange a space to stimulate them to work together?
Photo: School with Class 2.0 resources

TIME: one school semester	FUNDS: necessary cost of construction works, but also varied learning equipment for the new space	RESPONSIBILITY: principal, teachers, external contractor

CREATIVE SPACE FOR TEACHERS

It often happens that the school lacks a place where teachers could sit down in a larger group, but not at school desks. Sometimes the staff room could become such a place, but it usually is not. How to enhance the cooperation and release creativity of our teachers? Can physical space help us with that?

PIOTR KOZAK
Evangelische Schule Berlin Zentrum in Berlin, Germany

Evangelische Schule Berlin Zentrum is where the "school awakening" movement emerged. One of the main reasons behind the creation of the school in 2007 was the observation that students may perhaps pass exams and climb up the education ladder, but they do not acquire enough practical life skills. A standardised teaching curriculum does not enable capturing the wide variety of students' needs and interests. This is why they put emphasis on interdisciplinary projects and developing student's responsibility for the learning process. One of the premises of the school is the fact that it should undergo constant changes, reacting to the changing world.

After several years, students stopped fitting in the main school building. The Berlin school received second, neighbouring building from the city, which was partly allocated for classrooms, but an entire floor was rebuilt to create an open space for collaboration between students, teachers and frequent visitors from other schools and educational organisations.

The creative space takes up approximately the surface of several classrooms. It is designed as an open space. All of its parts are separated by boards, tables, and racks of shelves, which makes work in smaller teams possible. Architectural "niches" were planned as well. Sometimes successful collaboration requires

focus and temporary isolation from the rest of the world.

The space is mobile. Most of its elements – especially places to sit – can be easily moved around, and thus rearranged according to current needs. It is important to secure free and easy communication. Consequently, the maximum number of available open spaces was created while avoiding architectural barriers in moving in between the "niches". Therefore, despite working in groups, the effort and the result of the work is collaborative. Each teacher has an insight into the work of other groups, which enables free exchange of information and creative problem-solving.

The interior decor is minimalist. This allows to manage the space freely. Post-its can be placed on white walls for brainstorming. The results of the work can be also drawn up on flipcharts and sliding boards. Office supplies are stacked on mobile stands which makes them easily accessible for all users. There are also large tables for drawing and planning. Depending on the needs, tables can be moved around and joined. The most important thing is to make the space adapt to the user, not the other way round. And one more remark: teachers' creativity flows more freely when they are liberated from their chairs, and taken out of the classroom space. This place is simply better for talking,

sharing ideas and coming up with innovative approaches to education.

The place can hold both brainstorming on the subject of school development, and house ongoing work on teachers' own educational materials. In several rooms, original textbooks and materials are created which can help the students and encourage them to advance their knowledge on their own.

Good advice

Such a creative corner should exist in every school. Very often all available rooms in the school are intended for teaching purposes. Hardly any school can allocate large spaces for any other purpose. But usually it is possible to find a small room which for various reasons cannot be used as a classroom. We could start with such a room and try to use it and create a place for teachers to collaborate, work, meet and discuss.

TIME:
from several months up to one year, depending on the scope of necessary work

FUNDS:
investment (refurbishment, renovation or reconstruction of the space)

RESPONSIBILITY:
school principal, authorities responsible for running the school, teachers
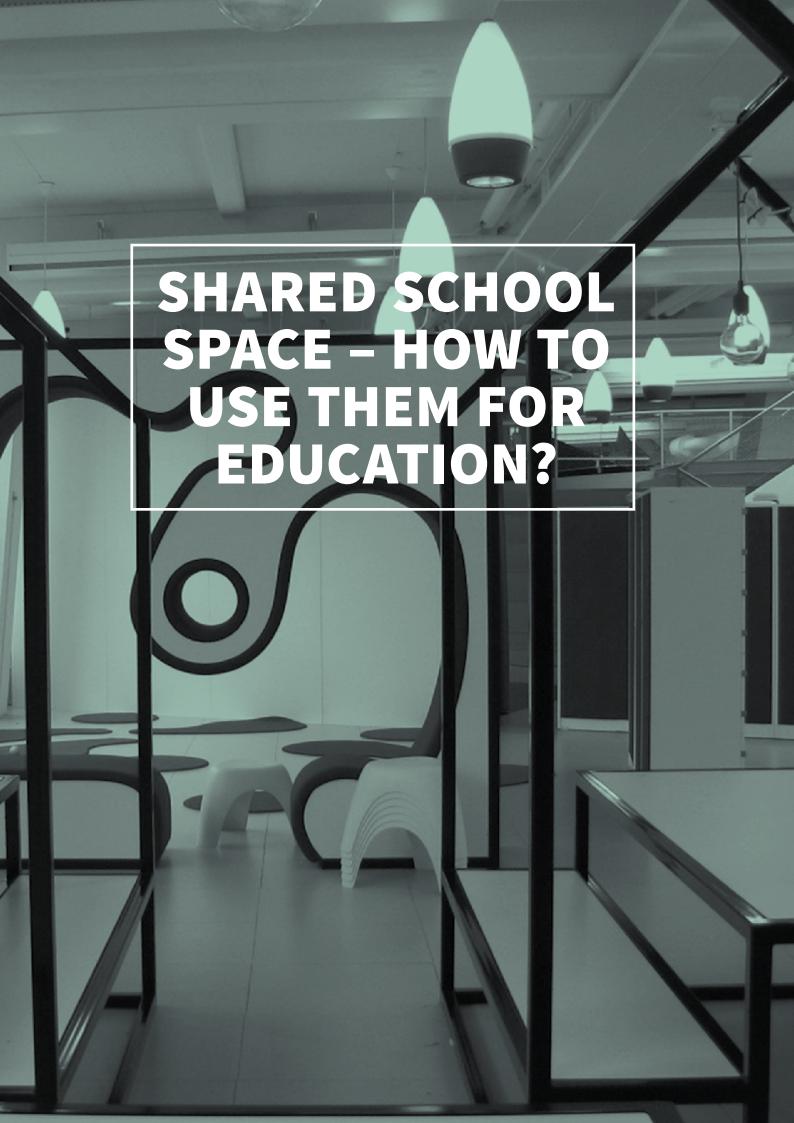

Teachers need a place in the school where they can talk, but also do some creative problem-solving in a group or work on teaching materials. Neither the staff room, nor classrooms are suited for such work.
Photo: Marcin Polak

SHARED SCHOOL SPACE – HOW TO USE THEM FOR EDUCATION?

THE FIRST IMPRESSION – ENTERING THE SCHOOL

Most schools, especially in larger cities are entered through... the basement, since in most of these buildings cloakrooms are located under ground. What is the first impression of a person entering the school? Is it a huge organisational challenge for the school to have a welcoming main entrance (for visitors) and an entrance to cloakrooms (for students)? The image of the school nowadays depends mainly on the opinion expressed by the parents and students online, but when we want to get to know the school better, we must visit it ourselves. The main entrance to the school is its calling card, and says a lot about it.

MARCIN POLAK
Middle School no. 24 in Wrocław, Poland
Evangelische Schule Berlin Zentrum in Berlin, Germany
Primary School in Książenice, Poland

The school entrance is the place of the first contact with the educational institution and will say a lot about its organisational structure. It is a place where we should easily get information about the institution and assistance if we need it. Crossing the threshold can transport us to a particular (for some, even enchanted) world; childhood memories come back. We start to look around and after a while the first impression about the school is made. It can be of importance for the parents who are looking for a good school for their child. What we encounter just inside the door should not be left to chance, but should constitute an element of a deeper communication strategy.

The first impression is important when crossing the school threshold. The wind rose welcomes the visitors in Middle School no. 24 in Wrocław. Photo: Marcin Polak

Thinking about that first impression the school makes, we should also think about the way which leads to its entrance. We could say that older public schools have a bigger problem with the entrance. They were built in another time, all according to the same designs. The entrance used to be unimportant – it was just supposed to be functional. It usually involved smaller or larger front stairs.

Middle School no. 24 in Wrocław, one of Janusz Korczak association schools, greets visitors with a spacious hall leading to the rest of the school building. The characteristic element of this space is the enormous wind rose on the floor, which is symbolic for the school and the education it provides. It is also a good place for organising exhibitions and presentations of students' works and results of various projects – and upon entering we know straight away that something is certainly happening in this school. Only after crossing the wind rose we can descend to the cloakrooms or go towards school corridors.

A very interesting and unique entrance to the school was co-created by the students of the awakening school – Evangelische Schule Berlin Zentrum. The

older part of one of the oldest German schools is housed in a school building which used to be mass-constructed in the former GDR and other socialist countries. It is not a public school, and therefore it is more difficult to secure funds for renovations and decorations. This is why many works were performed on a volunteer basis – classrooms, corridors and staircases were renovated by parents and students at their own expense. The arrangement of the entrance to the school should be left to students who decided to emphasise the unique character of the school which stands for freedom, expression and creativity. Certainly not everyone will like it…

Newer school buildings have less problems with the entrance. In these cases the entrance is already a part of the well-planned architectural project in which much attention is given to shaping good relationships with its visitors – usually parents and guardians.

A good example of a well-planned main entrance is the Primary School in Książenice. First of all, the space in front of the school is well taken care of. An oak tree dubbed Fryderyk was planted here, and a bench was installed around it, for the visitors to sit down and wait for the children to come out. The square has also become a meeting place and venue for school and local events. A simple entrance invites to come in. After crossing the threshold, we find ourselves on a large playground, from where we can continue in various directions. There is no need to go down to the cloakroom, because lockers and cloakrooms are situated on the same level, next to the entrance.

💡 Good advice

Let's make a thought experiment: let's think about what a visitor, who has never been in our school before, should see upon entering our school. What does the entrance zone look like, what information can they find here, what information about the school does this place communicate? Since schools are so different (they have different ideas of concerning work) answers to this question will never be the same. But when considering a comprehensive vision of the school, it would be certainly advisable to ponder over the question of the entrance. We should also try to involve the student council – perhaps they will propose some interesting ideas?

We should remember that in the contemporary world, the school in a way competes with the modern shopping mall, home, or the leisure centre, so when we design or modernise the school, we should try to make the entry enjoyable. We should attempt to place complete information about where we are right next to the entrance, and if the school is affluent enough, also multimedia screens (TVs) with information about current school events and activities planned for the day or the week.

TIME:
changes that improve the appearance of the entrance can be implemented quickly

FUNDS:
the costs depend on the scope of renovation or construction works

RESPONSIBILITY:
the principal, teachers, students' council

Left: Upon entering the Evangelische Schule Berlin Zentrum in Berlin managed by Margret Rasfeld, we know straightaway that it is a particularly original place. Photo: Marcin Polak
Right: The school in Książenice not only invites us to come in, but also to rest in front of the entrance. In many years, there will be a huge oak tree growing right here, which will provide shade for parents picking up their children. Photo: Marcin Polak

SCHOOL CORRIDORS AND YARDS

Corridors constitute important elements of the school building. They are usually empty spaces, simply begging to be put to better use. Do these places also serve education? How can we include them in the life of the school?
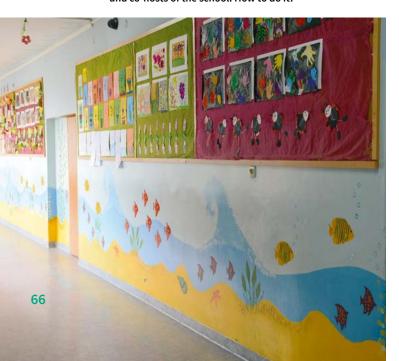
ANNA GRODEK, PIOTR KOZAK

Maria Skłodowska-Curie School Complex no. 1 in Sopot, Poland

It used to be a typical school corridor. A long communication route linking rows of classes. A place which can only be associated with rules like "no running" (outside of PE classes) and "no sitting on window sills". That's it. The subject of corridors was rarely discussed in staff meetings. After all, there are usually many more pressing issues to discuss than the question of "communication routes".

The corridor is a "grey zone". It is not a classroom, which would be cared for by a teacher. But it is also not an outside space. It lies between the school and the not-school. It is a mistake. Students spend a lot of time in the corridors, this is where they socialise and learn. Very often it is also where they do their homework and where stressed students make last-minute revisions before tests. We should then reclaim corridors for education.

We would like to make our students feel co-creators and co-hosts of the school. How to do it?

The first thing that we did was to share the responsibility for the corridor with the students. It is not enough to hang information posters and repaint walls. If we wanted the corridor space to be "ours", we had to mean and include also students. It is important that students feel that this space belongs also to them, that they are its co-creators.

Various elements of the corridor decorations were to a certain extent created independently. For instance, one of the teachers did not like corridor lamps. When she mentioned it during a design class, students picked up the idea and decided to design and then manufacture new lampshades themselves. They were made of plastic bottles, paper, staples and string. They might not look store-bought, but the important thing is that they are ours. A mural featuring a balloon with OLPI sign was the answer to the school event organised around the theme of "air". A mural featuring silhouettes was the initiative of a group of students whose likenesses-images were put up on the wall. All murals were designed and painted by students.

The result was the improvement in the aesthetics of the school space, as well as integration of students who work together, and practicing design and painting skills. Yet in our case, the most important outcome was the sense that together we are creating our space.

Good advice

It is important for teachers to pay attention to students' remarks about the school space. Also teachers themselves should show initiative, involve a group of students in the work in order to show the rest that arranging the space together is possible. Someone has to be the first to break the stalemate. Changes in the space should, at least partially, be made as a part of regular didactic activities. The ceiling could be decorated with constellations of stars, and geometry can be learned with a protractor painted on the floor in the maths classroom. It would be good to involve a teacher and parents or a selected person from outside of the school, with a good artistic sense. A budget allotted for such activities would be very helpful. We could also try to get some outside funding, and involve e.g. the PTO.

TIME:
from several hours to several weeks

FUNDS:
modest funds necessary to purchase paint, brushes, various construction supplies, cables, lightbulbs, etc.

RESPONSIBILITY:
teachers, students

Students can surprise us on many occasions. For this to happen, we have to let them act on their own. This is how the Sopot school corridor looks like.
Photo: Anna Grodek

GOOD IDEAS FOR AFTER SCHOOL CLASSROOMS

Primary school pupils spend many hours in after-school programmes, sometimes even more than in regular classes. After-school programmes are filled beyond their capacity, very noisy and children can barely stand staying there. Reorganisation of after-school classrooms, even if the conditions at the school are not good, is as important as the improvement of the teaching quality. The problem with the lack of sufficient space is typical for many schools, but in such a case we should think about using smaller rooms for creating smaller thematic after-class rooms, intended for stimulating particular activities.

MARCIN POLAK

Public Primary School in Ostojów, Poland
Non-public Primary School "Little School" in Konin Żagański, Poland

Several years ago, the school in Ostojów decided to put into practice Prof. Howard Gardner's theory of multiple intelligences, and stimulate various talents of the students. As a result, there is not one, but many after-school classrooms in the school, and each aims at a different aspect of student's development. Educational tasks taken up by the after school teachers are based on this theory, and thus they serve the task of modifying after-school work with children and enrich the offer of existing models. Students declare the will to participate in activities themselves, according to their interests and needs. They make ultimate use of their potential and learn in a way which suits them best. And thus, apart from a traditional, large after-school classroom, intended mainly for the youngest children, we have also several smaller thematic rooms.

Music room. Here students can develop their musical talents through playing instruments (guitar, keyboard, flute, glockenspiel), exercises involving percussive instruments, a klanza sheet or boom-whackers, choreography activities with elements of theatre with the use of theatrical props and puppets, listening to classical music, or singing. Students spend their time on creating their own dance or rhythm routines and choreographies for the school theatre. For them, dancing in this space is a way to express their feelings, or to relax. Music permeating this room enables active listening in a position chosen by the child (carpet, mattress, armchair, beanbags). It is noteworthy that the music room is where students with similar preferences, but of varying ages (from kindergarten to grade 6), meet to share their experiences and play with music, using their imagination and intelligence.

Public Primary School in Ostojów, Poland

Arts room. Students can develop their painting and theatrical talents here. Their creative imagination is stimulated through drawing, painting, modelling, casting, sculpting, weaving and sewing.The arts after-school classroom creates decorations and spatial forms for school events, which boost the image of the school. Around Easter and Christmas students prepare decorations and postcards for the holiday fair. They participate in arts competitions at school, outside of school and in national competitions.

Reading and leisure room. This is the place for children who like tales, poems, radio plays and stories. There is a collection of radio plays which children can access on the condition that they respect silence silence and fellow students' right to relax. This is also the place when one can read books, relax in a hammock, or listen to music in silence.

Analytics and logic room. Here students can develop their skills in logical thinking with the use of numerous fun educational aids, and playing various games (chess, checkers). They use blocks to create various constructions and buildings inspired by the world of fairy tales. This is the place for students who work in groups to create games for others, design labyrinths, and create fantastic origami and other folded paper crafts. Recently, the room became the home for coding – students are learning to code in Scratch.

Sensory room. Children use the devices collected in this room to create sensory stories, pantomime, kinetic charades, search for hidden objects, play hare and hounds, construct and run obstacle courses.
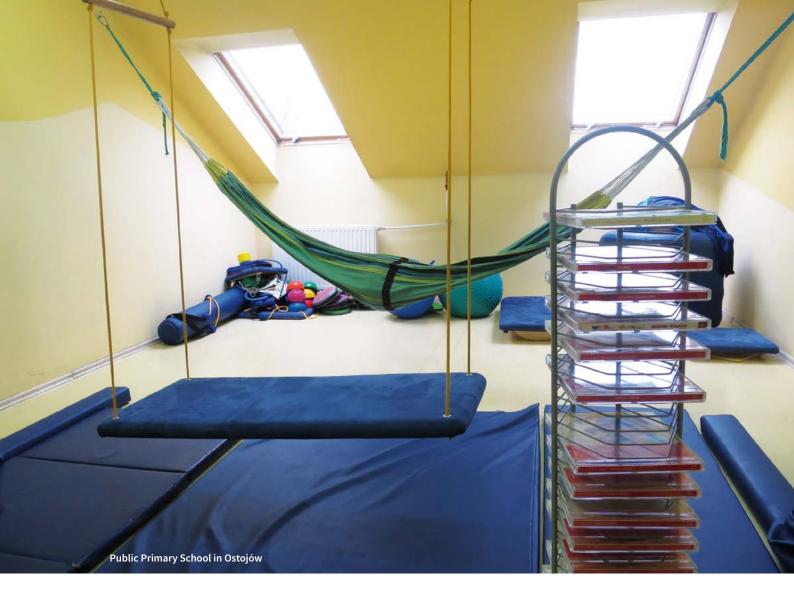
Nature room. It is the home of school animals (hamsters, stick insects, rabbits) and plants in the care of children. Sometimes students' pets "come to visit" as well. The care continues even when the school is closed. For holiday breaks and during the school year, lists of students are created to indicate who would take particular pets or plants home for several days. It serves well to induce children's responsibility for living creatures.

Public Primary School in Ostojów

Public Primary School in Ostojów

School mini-zoos, which are organised particularly in small-town schools, are a special type of an after school programme class. In a way, it is an external classroom, as students spend a lot of time on keeping animals' enclosures tidy and caring for them. Such a mini-zoo exists in non-public Primary School "Little School" in Konin Żagański. Children call it "the Enchanted Enclosure". There are goats, sheep, chickens, ducks, two peacocks, rabbits, a potbellied pig, two dogs, including an adopted basset hound, and an Andalusian horse named Edukada that came to the school all the way from Spain. All animals have names, usually invented and given by children.

The person in charge of the enclosure is the school principal, Wiesława Patyk-Kozłowska, who had dreamt about such a place next to the school for years. Inhabitants of the village assist in caring for the animals as well. Many farmers provide fruits and vegetables from their gardens, they bring in hay or feeds. Children bring potato peels, stale bread or eggshells daily. The location of the school allows for such an organisation of the space. The school is surrounded by meadows where animals can graze, and small cell-like constructions enabled creating separate enclosures for two- and four-legged creatures. A veterinarian friend of the school often checks on the animals. Children gladly care for them. They are happy when they can help by feeding or watering them. They have the most fun when new ones come into the world. This year, in winter, we had two new kids, and their names will of course be chosen by the students.

Teachers see many advantages of children working with animals. Learning responsibility, empathy and stimulating sensitivity to nature are the most important features children can acquire while working in such a "live after-school programme".

The mini-zoo in Non-Public Primary School in Konin Żagański

Good advice

Nothing indicates that children will spend less time in after-school programmes in the near future. Their condition often leaves much to be desired – maybe not in terms of the room itself and its equipment, but overcrowding and excessive noise levels (children complain that it does not allow them to do their homework and this is a serious problem). Perhaps the reorganisation of the after-school programme could become an opportunity to educate about maintaining silence at school. It would be advisable to review the entire school building, as well as external spaces, and consider whether smaller rooms could be adapted for after-school classrooms.

TIME: depends on the space available at a particular school and whether construction investments are necessary. If the rooms are ready, the arrangement itself does not require much time.

FUNDS: cost of additional equipment for particular thematic profiles

RESPONSIBILITY: principal, director and teachers of the afterschool programme

NEW SPACES FOR READING

Reading books, both paper editions and increasingly more popular e-books, is beneficial for students' intellectual development. Reading broadens their general knowledge about the 'adult' world much better than school textbooks; it feeds their imagination, expands vocabulary and inspires critical thinking. Regrettably, the number of readers among children and adolescents continues to fall. Schools can and should encourage young people to read, starting from the youngest students. Teachers and librarians have their role to play in this important endeavour; however, educational space may also be arranged in a manner conducive to reading books.

MARCIN POLAK
STO School Complex in Bemowo, Warsaw, Poland
ATUT Bilingual Schools in Wrocław, Poland
Vittra Telefonsplan in Stockholm, Sweden
Evangelische Schule Berlin Zentrum in Berlin, Germany

At schools all over the world students tend to read less paper books and this trend is not likely to change. Traditional books are losing the battle against e-books, colourful and dynamic websites and even against e-textbooks that contain more resources supporting learning than traditional paper textbooks. In many schools attempts are made to try and promote traditional books, with several success stories. Today, however, one needs to make on-going effort to attract students to books. To put it in market terms, encouraging students to read requires continuous marketing activity to attract the students' attention, make them interested in a given publication and nearly force the said book into their hands.

Can the school space be of any help? Of course! Once a student has a book in his/her hand, a quiet reading area would come in handy. Polish schools lack quiet nooks where students could be alone and immerse themselves in reading. It is a good idea to design such areas. There are at least several possible solutions as to how to achieve it.

In STO School Complex in Bemowo, Warsaw, there is a tradition of reading books to students (both at school and during school trips.) Jarosław Pytlak, the school principal, allocated a separate room for reading students - the former scouts' room. This space was given the name of "Czytalnia". The room was renovated; the students painted the walls with the colour of their choice and soft carpeting was

"Czytalnia" reading space in Jarosław Pytlak's school in the Warsaw district of Bemowo.

laid on the floor. The room was also decorated with poufs and pillows and with a "majestic reading armchair" (for teachers who read books aloud to children from grades 0-3). In this way an actual "cave" was created, for students who look for a place to hide with a good book.

Similar spaces have been arranged in Vittra Telefonsplan school in Stockholm. With their shape they even resemble actual caves! The entire educational space in this facility has been arranged according to David D. Thornburg's theory. Those rooms have been fitted with a large number of sockets that allow students to read books on their electronic devices.

The multimedia library is one of the most important self-study spaces in Evangelische Schule Berlin Zentrum. It holds a large collection of books and it is equipped with computers with Internet access;

Reader's corner – an important part of a multimedia library in Berlin's "awakening school". Photo: Marcin Polak

students can enjoy armchairs, sofas and a special platform where they can comfortably lay down with a book. The multimedia library is appreciated by the students who go there with their obligatory readings, textbooks and computers.

The above cases constitute good examples of how to design a reading area at school. They can be supplemented with initiatives implemented in private Bilingual Schools ATUT in Wrocław. In one of the corridors a dedicated "house" for books was put up, where students may leave books and magazines they have read for their peers.. The "house" is on wheels, so it can "follow the students" to the areas where they spend most of their time. Another interesting idea was spotted in the school library. A rope was hung between two opposite walls of the library and it serves as display for boards with photos of students who borrowed books. Under every photo there are copies of covers of the books read by a given student with brief information about the book's content. It is a great way to promote read-

ing! This unique gallery allows students visiting the library to discover what their friends have recently read. In this way students allow their image to be used to market books, and their peers are more willing to read a publication "recommended" in this way by their friends.

💡 Good advice

Reading books in digital times requires a lot of willpower from students, when the world around provides them with so many visually attractive and interactive alternatives – smartphones, tablets or laptops. For this reason it is a good idea to design school areas and corners that serve as "caves" - spaces where students may hide with a book and find respite from noisy school corridors. Such corners and areas do not necessarily have to be located in a library or multimedia library; these actually may be too busy to allow students to focus properly. It may be a good idea to take a walk around the school building and notice the location of various rooms, nooks and niches that could be adapted for smaller or larger reading rooms.

TIME:
from one week to several months

FUNDS:
average cost, unless a construction works are required

RESPONSIBILITY:
teacher, librarian, principal

House for books and a gallery of recommended readings in ATUT School Complex in Wrocław. Photo credit: Marcin Polak

"Reader's cave" in Vittra Telefonsplan school in Stockholm. One of students' favourite rooms.
Photo: Marcin Polak

STAIRWAY TO KNOWLEDGE

According to a popular saying, we learn best when we are not aware of the learning process, when learning is a by-product of a fun activity. In most schools students go up and down flights of stairs everyday to reach classrooms. With only a little bit of effort, those stairs can be transformed into 'teaching aids'.

MARCIN POLAK
Primary School no. 9 in Ostrów Wielkopolski, Poland
Primary School no. 26 in Łódź, Poland
Private Primary School COGITO in Płock, Poland

The educational potential of school corridors is very often underexploited. Regrettably, because hundreds of students walk up and down them every day. Various teaching aids can be easily introduced into that space – as it was done in many schools, for instance in Primary School no. 9 in Ostrów Wielkopolski or in Primary School no. 26 in Łódź. When we go up the stairs, we have a reflex of looking under our feet. Why not put educational content from any subject there - Polish literature, foreign language, maths, history, life sciences?

Such stairs may help children in memorising the multiplication table, parts of speech or key historical dates. They may also assist them in learning irregular plural forms, basic expressions, word order and spelling of difficult words in a foreign language, or names of great scientists and their inventions. Elements of play may also be included - students may, for instance, go up the stairs in a given manner.

Preparing 'educational decorations' for stairs is very easy. It is enough to buy stick-on coloured foils, letters and numbers, and stick them under each step on the stairs. We may also use colour oil paints to paint key information in desired areas.

Also, the corridor walls may be decorated with educational material, e.g. with various educational aids or alphabet letters written in neat lines. This is how the walls were enlivened in Private Primary School Cogito in Płock.

Good advice

Do not think about these decorations as permanent elements. It is a good idea to refresh the information painted on stairs, so that children keep learning about new things. Another solution is to design and attach under steps transparent pockets that would serve as showcases for changeable content. Those decorations should be made with quality materials so that our educational aids' are not damaged by cleaning. Moreover, students can be involved in creating 'educational stairs'; teachers may delegate a part of tasks to them. You may also ask the students in various age groups what is particularly challenging for them and what they would like to memorise with the help of such educational aids.

Staircases in Cogito School in Płock are used as educational areas. When students go up and down the stairs several times a day, they instinctively read the content written on them.
Photo credit: Luiza Kalinowska-Skutnik, Cogito School

Mathematical stairs in Primary School no. 26 in Łódź help the youngest students to practice multiplication table.
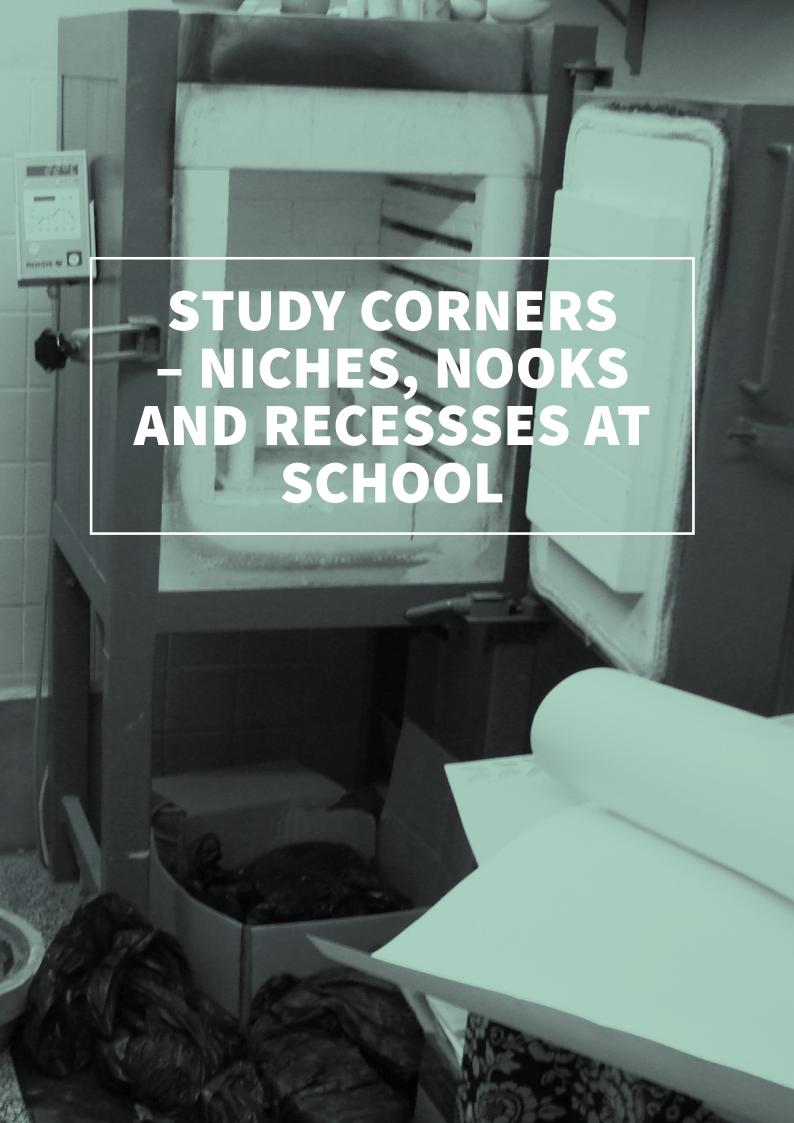Photo credit: Natalia Pacocha

TIME:
several days

FUNDS:
it is a low-cost project

RESPONSIBILITY:
teacher, students, principal

STUDY CORNERS – NICHES, NOOKS AND RECESSSES AT SCHOOL

MICRO-SPACES FOR STUDYING AT SCHOOL

Students differ one from another, and for this reason the school space should be adapted to all kinds of needs and all types of learning situations that students encounter. Some school spaces make effective learning simply impossible (because of numerous factors, e.g. poor acoustics, lighting, uncomfortable furniture, scratched walls). Many of such spaces can be improved at a low cost. All we need to do is change our attitude to the classroom and try to diversify the educational space.

MARCIN POLAK
Vittra Telefonsplan in Stockholm, Sweden

It is easier to plan the location of various learning-enhancing elements in all kinds of learning situations in an open school space. Let us return to the idea of David D. Thornburg that was mentioned at the beginning of the manual. He suggested defining the educational space through five symbolic areas where social interactions take place and where we learn from each other. Can we imagine such areas at school? Naturally! We can see good ideas and good practices in many schools. Vittra Telefonplan primary school in Stockholm is probably the best case in point; the school is located in an old telephone factory and was designed to serve as an optimal learning environment for children between 6 and 11 years of age.

In the open school space, dozens of original and visually attractive elements that support the learning process in various situations were designed from scratch (inspired by basic didactic principles and prepared in cooperation with school teachers and designers). This resulted in a diversified learning environment that allows every student to find a place for himself/herself and study in line with his/her cognitive style. Each of us learns best in various conditions - some of us prefer to study alone, others with a partner or in a small group, and at times through interaction with a larger group. In this school there are areas that have been designed for various learning purposes, depending on the situation. Each of these areas is an educational micro-space in which students can grow and develop. Please examine examples below (we are ready to expand the list if we find similar solutions in other schools):

 Blue mountain – the centrally located mountain dominates the space and plays a special role in this school. It serves as a meeting point for large groups of students, and even for the entire school community. It may also be used as space for audience in front of a scene located at the bottom of the mountain. It is a symbolic space where students present their works and overcome their weaknesses while practicing public speaking. A rather steep 'slope' of the mountain with seats allows the audience to follow the developments on the scene.

Cave – where there is a mountain, there also must be a cave underneath, dedicated to individual or group learning activities. It is one of students' favourite places – they can hide in there when they want to study in peace.

Concentration niches – in every classroom there are students who need to leave the group in order to focus on their task. Catering to their needs was very easy; it was enough to build small plywood booths with a desk and proper equipment (including sockets, for students who want to use their computers inside). Such booths should be mobile (e.g. on wheels), so that they can be moved to the desired area.

Village – a group of larger tables with benches, dedicated to group work; their original shape is reminiscent of houses. Students work in houses in groups of 4-6, while the teacher has easy access to them from every side.

Reading corner – it is difficult not to notice that in every school students sit on the floor to read or browse their smartphones. It is not difficult to arrange space for such students and put inside books, magazines and comic books that encourage students to read. In this case it was enough to use scraps of carpeting to create an eclectic pattern on the floor. This area is also well adapted for fun and games - it may serve various purposes depending on the context.

Media labs – these are small rooms dedicated for several persons who work with computers. The rooms are closed to prevent noises from the outside from distracting the students. The space is adapted for individual and group work on IT-related tasks.

Studio - a room with silenced walls and doors, dedicated for music and dance activities. Students may play musical instruments or music from the stereo without disturbing their peers in other classrooms. It may be used for music recording, dance practice or for sport/leisure purposes.

A lone tree – a meeting place that can hold a large number of students and facilitate interactions among them. The tree is surrounded by sitting places on the 'grass' or on a low wall. In this area students can freely engage in conversation, meet new people and share information and ideas.

Galleries – area for teamwork. This is another example of a simple, yet universal area built of plywood. Inside there are soft seats, and the space naturally divides students into groups; every group can work on its task in a separate gallery.

speaker makes a presentation in front of them. The island is located next to media-labs, whose external wall were transformed into a gigantic blackboard; this makes the island an excellent place for brainstorming and drawing mind maps.

Lab desks – it is an area designed for conducting experiments and for manual work. The desks are adapted for group work. They are especially handy for cooking or artistic activities, as well as for chemistry or biology labs.

Atelier – this area encourages the students to engage in artistic expression; it is equipped with easels, paints, brushes and it holds a small gallery to display their works.

Green island – it is simply a large couch placed in the middle of the corridor, inviting students to take a break. It facilitates interaction in small groups; it may also be used as space for rehearsals and group presentations - the students can sit comfortably on the couch, while the

Games corner – it is a space for games and play. It may include popular football, but also a hopscotch court or a chessboard painted on the floor.

It is impossible to list all the elements of educational micro-areas that may be encountered in schools. Apart from those described above also the following should be mentioned.

Armchair corner – a separate part of the classroom with a carpet and a large armchair (it may also be a rocking chair). This solution was used in Primary School in Ostojów (Poland) and in Evangelische Schule Berlin Zentrum (Germany). It is dedicated to the youngest students (early elementary schooling). The teacher sits in the armchair and reads aloud, while the students sit comfortably on the carpet around the armchair

Primary School no. 13 in Olsztyn, the owl armchair.

Evangelische Schule Berlin Zentrum, Berlin

Chair with owls – a reversed version of the armchair corner, spotted in Primary School no. 13 in Olsztyn (Poland). You need a special chair (it should stand out among the others; for instance it may be a renovated piece of old furniture); colours and child motifs are welcome. In this case the chair was covered in fabric with colourful owls. This chair is for a student who presents his/her work (or reads) to his/her peers. It is seemingly an unimportant piece of furniture, but it has an important educational role in class.

Windowsills – areas for individual work windowsills inside classrooms; students may work there with a computer or a tablet, spotted at Evangelische Schule Berlin Zentrum (Germany). They are adapted for individual and pair work (students are sitting back to back; in this way they may leave a group for a while to work individually).

Good advice

The school space should foster creativity and support students in their everyday activity. It should also be designed in a way that fulfils their developmental, social and emotional needs. The more elements there are in micro-areas in classrooms and at school, the more learning opportunities they create. We should bear in mind that learning occurs in all sorts of situations. It is a good idea to carry out an audit of the school space. We may examine classrooms and school spaces and try to assess whether individual spaces differ one from another; let's also check how they contribute to the learning process. Next we should think how elements present in those micro-areas could be introduced at school - some of them are really easy to implement. However, every element should serve educational purposes. It is not only about aesthetics (aesthetics is important, but our priority is the learning process).

TIME:
from several weeks (if one classroom is rearranged) to several or a dozen months (in the case of comprehensive rearrangement of the entire school)

FUNDS:
this project requires some expenses; the amount will differ from school to school

RESPONSIBILITY:
principal, teacher, students

A SCHOOL THAT REMEMBERS

We often fall into the trap of talking about schools as if they existed in a void. Not without a reason; all schools – those in large cities, as well as those in rural areas – look similar. However, if we want to have open schools, we must not forget about the context in which they exist. Let's try to adopt a broader perspective and perceive the school building not only as a learning facility, but also as a place that can tell its story and be the centre of the local community life. Also, the space surrounding the school may and should talk about its region.

KATARZYNA GÓRKIEWICZ, PIOTR KOZAK
Primary School in Podmokle Małe, Poland
Primary School no. 81 in Łódź, Poland
High School Complex no. 1 in Ruda Śląska, Poland

Cooperation with the local community means more than just working with the local inhabitants. It requires a special focus on the local identity; first and foremost on the local memory, character and history. A school may become a community-building centre. It may serve as an antique museum. Does it sound extravagant? If so, why?

A school in Podmokle Małe, a small village in the Lubuskie region, created a heritage park of farm machines and equipment. The Implementation of this idea was very simple. The school made its yard available for the inhabitants and asked them to bring their old and often useless farming machines. The initiative was welcomed with enthusiasm. It launched the process of searching and renovating old farming machines. Today the heritage park features nearly 200 exhibits, including a quern, horse gear, harrows, a grinder, mills, horse collars, wood carts and many others. There are also horse carriages on display - the oldest ones date back to the 19th century. The most impressive exhibit, however, is a 20th century post mill moved from the neighbouring village.

The benefits of having a heritage park are twofold. On one hand it makes a great space for biol-ogy, history and maths lessons. On the other, it is open for everyone, including school trips, and it has become a tourist attraction in the municipality. Furthermore, local inhabitants have created a space that bears witness to their common history. Every one of them contributed to the identity of this place.

Inside the school there is also a Memory Hall dedicated to the founder of the school and a local hero, Franciszek Sarnowski, who established the first Polish schools in the Lubuskie region. The hall features exhibits donated by the inhabitants and by the family of Mr Sarnowski. The Memory Hall helps to forge a timeless bond between the generations, while the town itself discovers and creates its history.

Children Heroes of Łódź Primary School no. 81 has a particularly difficult patron. The building itself was erected on the site of a World War II Nazi concentration camp for children and young people. Together with the teachers, the school's principal decided in 2011 to carry out an educational project related to this this delicate and difficult issue. The project's name was Free Chudy – today we will give you not only our memory. The project involved

students meeting and talking with the local inhabitants at the former camp site about the history of this place. Students also took an active part in a happening close to the nearby monument of Children's Martyrology and wrote letters to the former prisoners or got in touch with them or with their children. The project helped to create a collection of items that are traces of the grievous past – letters, photos, pages from camp registers of prisoners. The school also decided to create a memory hall where other students and guests visiting the school are able to see those exhibits.

It is a difficult place. Probably also because it is located in a primary school. It took some courage from the teachers and the principal to bring up those difficult, yet important topics. We can learn from the school in Łódź how to wisely talk with the youngest children about grievous history, and how to incorporate those difficult issues into school space.
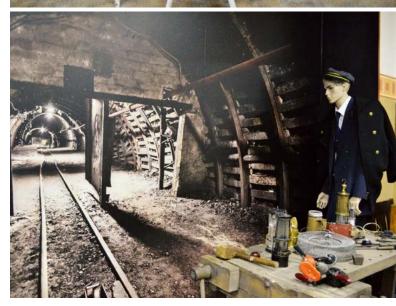
The High School Complex no. 1 in Ruda Śląska decided to create a space modelled on a one-room house of a family of miners in the framework of a European project. It was done in a long and narrow classroom that is also used as a computer room. Exhibits were collected from the local inhabitants, and one wall was decorated with a large photograph wallpaper showing a mine gallery. The computer room now gives the students an impression that they are not at school, but deep underground.

Good advice

Every place exists in a given context and is marked by its history, by persons and events that shaped the present world. One should embrace the history of his/her neighbourhood in a wise and brave manner. It is a good idea to seek remnants of the past together with the students and to examine them carefully. In this way we get to know ourselves and the region we live in.

The room of the family of miners from early 20th century reminds students about the identity of their region. Photo: Iza Wyppich

TIME:
from several months to several years, depending on the project's scale

FUNDS:
if parents and the local community is involved, the project is the low-cost

RESPONSIBILITY:
principal, teachers, students, local community

MAKING USE OF ROOMS AND CELLARS

In every school there are several rooms that are too small to hold a full course and conduct lessons. Often they are used as storage rooms for all sorts of things. Such rooms could be easily adapted for educational purposes. In our school we have found such a spare room in the cellar. How to rearrange it and adapt it for learning purposes?

ANNA GRODEK, PIOTR KOZAK
Maria Skłodowska-Curie School Complex no. 1 in Sopot, Poland

That room seemed good for nothing. It was small – it could hold up to 16-20 students, it was located underground and had no windows. We did not know how to make any use of it. For several years it served as a therapeutic room, but the school psychologist requested to be relocated.

For some time we had a problem with the common room. We had the same difficulties as many other Polish schools - we had too many students and not enough space in classrooms. It is difficult for teachers to work in such conditions, not to mention to make attempts at convincing the students that reading books is a worthwhile activity in their free time. We were in a need of a place where students could find a moment of peace. It seemed that there was a simple solution to our problem, namely adapting the cellar room for such purposes.

The room in question was small and it certainly would not have held all the children staying in the common room. We decided to use it later in the day, when there are less children and when they are tired and need to calm down. At times this room is used for civic education classes for younger students or for students' meetings in smaller groups.

Since the room lacked windows, it was necessary to install a proper ventilation system and adequate lighting that would be safe for children and allow for regulating intensity; in addition, we needed a stronger source of light over the place for the reading teacher.

We wanted the children to feel at home. The walls were painted in delicate, lavender colours. Also, images of a forest, a forest path, a river and animals were added, all in fairy-tale aesthetics.

The floor was covered with a thick carpeting. Poufs and pillows of various sizes and textures were added. Some of them resembled "flat" animals – a turtle, a ladybird or a starfish.

On one of the walls we created a recess and a shelf, which is also a seat for the teacher. A TV set will probably be put there in the future. A special board will be put up by the entrance with rules of use. There will also be space for children's requests regarding books that they would like to be read to them in the future. All these elements were prepared by the students themselves under the supervision of their teacher, together with decorations on the board.

Currently only young children are using the room. In this space they are calm and quiet, and get to discover interesting books. This room also allows them to learn how to be a part of a group. The children need to share the poufs; sometimes children sit in pairs on larger poufs and they should not push or poke one another. Moreover, if they are in-

terested in the story, they should stay focused and not disturb other children. They learn that sometimes they have to wait, for they will only discover what happened next in the book at the next reading session; they may have to wait for their turn to enter the room, because the schedule is binding for all the users. Children often bring their favourite books from home, which creates an additional value - not only do they learn to share their preferred readings with others, but they also have to overcome their stage fright when describing them.

Good advice

Not all of the underground rooms can be legally used for didactic purposes. You should carefully check requirements regarding school spaces (in particular if the ceiling is high enough and if the ventilation system works properly). If a room proves to be fit for educational purposes, we need to make sure that it is properly equipped. The materials should be of top quality (poufs and carpeting must last for a long time) and safe (before buying them do check if the carpeting and paints do not contain allergens nor harmful substances, they must comply with the highest norms). Parents and school employees may be invited to help with painting the room. Children may be asked to prepare some part of the decorations; it may be a good idea to partly or fully cover one of the walls with fabric (to turn it into a display space for pictures) or to put up large boards made of cork or fabric.

TIME: about a month (preferably during school holidays)

FUNDS: school and parents may share the costs of renovation (Parents' Council, School Council). The amount depends on the necessary renovation and adaptation work in the room, but part of it can be done by volunteers (parents and teachers)

RESPONSIBILITY: principal, parents

A small unused space can acquire a totally new function. In Primary School no. 1 in Bytom, a yoga class was arranged in such a 'nook'. Photo: School with Class 2.0 resources

INFORMAL LEARNING

In which ways can informal and formal non-school context be utilised to increase the benefits for formal school-based learning processes?

JUSTIN SISMEY (HIE-RO)
The Ecolea International School, Rostock, Germany

Context/Situation

Ask children what they prefer to do – to play outside the school or to go to school. We would all know what their answer would most likely be – not to go to school! And actually, when children are not at school it would be foolish to assume that they are not learning anything - as if they can only learn within the structured school environment. Of course, it is well known that learning can take place everywhere and at all times, both within school environments and outside school them.

And even within school environments, there can be learning outside what is organised and structured. We know that students are continually learning in all social environments such as their families, their cliques and clubs, through playing on the computer and games console etc., as well as through everyday activities that they are engaged in. This means that not all situations within/outside the school are formalised learning places. With this in mind informal learning needs to be addressed in three regards. The first is understanding that school can also be a space for informal learning. The second is to acknowledge competences that students have acquired in non-school or informal learning processes. The third is linking formal, non-school and informal learning processes to improve the school.

The key here is that students can get "skilled up" independently from school structures. But there are nonetheless some issues connected with the undertaking. The first of these relates to financial-

ly disadvantaged children and impacts families and their children. In some cases there are clubs and being able to access hem when they are only accessible to the more wealthy. The second is the ever-increasing amount of media to which students are exposed and this might again link with social inequalities. The third is the lack of personal relevance of formal learning for the everyday lives of students .

Potential Solutions

Schools can respond to this challenge by expanding, if not creating, informal learning situations (both in terms of places and time) for students. This can include specific places within the school where students can get involved and learn such as the playground, recreation areas, corridors, care rooms, "niche" areas etc., almost anywhere - where such places or spaces can be used for different things at different times e.g. a a playground becomes a meeting place for role play and a school canteen can be used for team gaming. This enables the involvement of all students regardless of social inequalities that might exist outside the school.

Social relatedness activities can be key to both the informal and formal learning contexts. Because much learning takes place during recreation and play, schools can have an important role in ensuring the conditions for recreation and play so that this potential can be achieved by students as much as possible. The Freie Schule

Rügen recognises this and provides extensive playing areas which encourage students, through play, to develop their relational skills as well as positively impacts their developmental skills of them too.

Schools can have more of an impact on informal and non-school contexts than might be expected – especially through parents. For example, The Ecolea International School in Rostock is in regular contact with parents both at a collective and individual level and this can and does influence what happens with the learning of students outside the school. A specific example of this is where the school encourages a balanced use of IT and mobile phones at home because without this students have been known to become so involved with social networks and communication applications that they do not complete their homework! Here, a healthy balance is key!

Keeping a balance is essential. Clearly students need both structured and unstructured environments for learning. But schools should give more attention and thought to how they can link better with and act in a complementary way to student learning that takes place outside the school in those informal places.
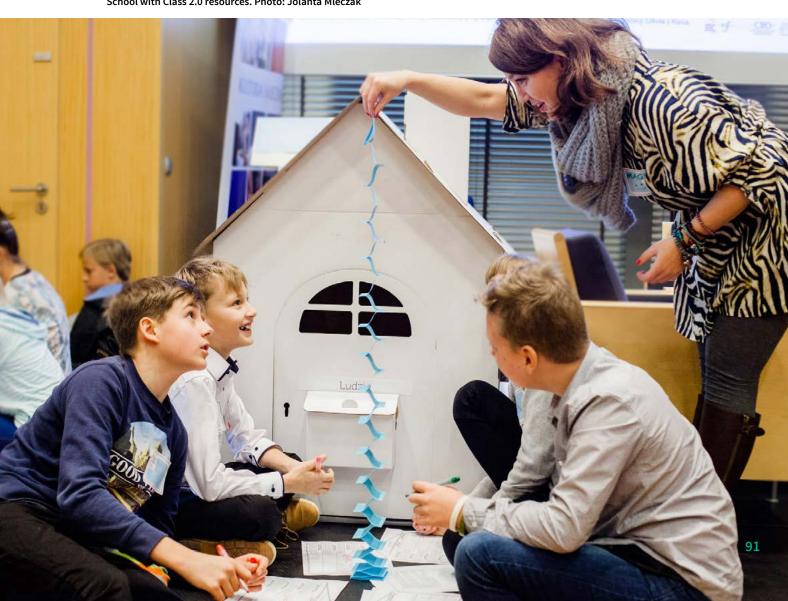
Further Reading

School playground: Its impact on children's learning and development - ResearchGate. Available from:

http://www.researchgate.net/publication/268979180_School_playground_Its_impact_on_childrens_learning_and_development

Informal Education in Schools

http://www.infed.org/schooling/inf-sch.htm

School with Class 2.0 resources. Photo: Jolanta Mleczak

AROUND
THE SCHOOL

SCIENCE PICNICS IN THE SCHOOLYARD

The area surrounding the school building has an enormous potential for education, sports and leisure activities, as well as for building positive social relations with the general 'school environment'. The Schoolyard is a great space to organise educational activities for learners at all levels. Classes don't have to take place exclusively in classrooms; they may be held outdoors, and not only when the weather is warm and nice. Teachers rarely seize this opportunity and claim that lessons are too short for such 'experiments'. It is a shame, because outdoor educational activities give a boost to the learning process! It seems to be a good idea to organise independent educational events in the schoolyard (for example educational projects). Local science picnics are a good case in point. Preparation for such events brings together students, teachers, parents and often the local community.

MARCIN POLAK
Primary School no. 306 in Warsaw, Poland

The schoolyard constitutes an area that favours social interaction, cooperation and learning through action. Making a wise use of this space encourages students to develop and pursue their talents. This space may be used as a lab to carry out exercises and experiments (for example the school garden) 🌀, as a meeting place for play and joyful activity (a playground) 🌴 or presenting one's creative work (for instance an improvised scene) 🏔, or as a space where one can listen to stories or enjoy conversations (for instance a roofed sitting area, or a fireplace surrounded by benches) 🔥. When organising the educational space around the school we should try and design separate areas that foster various kinds of educational interactions. Our imagination with regard to the possible uses of the schoolyard is often limited to sports and recreation. We tend to pay more attention to pitches, courts and running tracks and overlook areas that may serve the students in other ways.

All kinds of 'educational picnics' are a good example of initiatives that work well in schoolyards. In Poland this type of events have been popularised by the Copernicus Science Centre and its Young Explorer's Club, but there are no obstacles for schools to get involved in similar activities (e.g. in the form of an educational project). Such events constitute an opportunity for the teacher and for the students to design and carry out practical science labs and educational games. Discovering nature's secrets and laws of science through experiments may have a much greater impact on how students understand the world around them than learning about it from a textbook. There are no limits with regard to subject matters – such picnics can include any subject or group of subjects taught at school at any learning stage. Primary School no. 306 in Warsaw organises such an educational picnic between May and June, close to the date of International Children's Day. It is attended by several hundred people – students, parents and guardians.

In almost every school there is enough space to set up a line of stands with experiments that can be approached by the picnic's participants. They can be placed along the school building. Besides chemical substances and devices that we want to show and put to use we will need tables and chairs, preferably well prepared for scientific experiments. It goes without saying that we should ensure participants' safety and an unobstructed flow of people along the stands. Depending on our capabilities and ideas, we may model this event as we please in order to suit the students' best interests and other potential participants of the picnic. Every event may be devoted to different scientific matters and involve various parts of the schoolyard (e.g. the school garden, playground, sports areas, etc.). The area around the school is also well-suited for educational outdoor games that involve - for instance - QR codes

Good advice

The schoolyard can have an enormous educational potential. Usually it is under-exploited and is used for one purpose only (sports and leisure). It may be a good idea to organise an 'educational tour' of the schoolyard in order to understand how we can reorganise the schoolyard and create various educational 'stands'.

Holding a science picnic may turn out to be a major organisational challenge for the entire school, also because of the number of participants. From the moment of deciding to organise such an event we should chose a coordinator (teacher) and appoint a project team (including students and, if possible, their parents). The project team should receive necessary support from the principal; such an event automatically becomes a symbol of the school in the local community, which means that it affects the school's image and the recruitment process.

Science picnics organised by the school constitute an opportunity to take didactic activity outside the school building and to involve the local community in the event.
Photo: Marcin Polak

TIME:
up to three months of preparations

FUNDS:
it is a low-cost project, money is needed mainly for organising experiments

RESPONSIBILITY:
teachers, principal, parents

GARDEN – WHERE THE LEARNING BLOOMS

The school garden opens possibilities for organising interesting didactic activities in the space around the school building. Discovering nature is much more interesting when one can observe plants and animals in their natural environment. School textbooks encourage students to perform botanical experiments in classrooms, so in almost all schools classroom windowsills are populated with plants grown by students. However, it is nothing when compared to transforming a part of the school yard into a garden. Engaging in this kind of 'field' activity is worthwhile because it fosters cooperation and teaches responsibility. Moreover, such an initiative may include learning of other subjects, not only biology or life sciences.

OLIWIA KŁOSZEWSKA, MARCIN POLAK
Middle School no. 3 in Gliwice, Poland

Foreign languages can be taught and learned outside the classroom, for instance in a school garden located behind the school building. This idea was originated by a German teacher who wanted to teach us how to communicate in various real-life situations. Unusual garden classes allow us to go beyond the scenarios proposed by textbook authors.

At the beginning the garden was empty. As time went by, we came up with a design of this space and started minor garden work. We divided students into groups and, together, we were digging through the earth, planting seeds and hoping that they would grow into plants. At times we were close to despair because nothing would grow in our garden – except for weeds. Those were abundant. I hold a fond memory of those lessons, because they taught us how to communicate in German. After some time a part of the lawn started to resemble a garden.

Thanks to a willing, determined, ready to cooperate and supportive group we managed to create a beautiful garden. It was a true metamorphosis. Every now and then we would round up in the middle of the garden and review names of individual species of grass, flowers and vegetables in German. Thanks to regular maintenance work in the garden our friendship and plants began to grow.

Through working in the garden together with my peers I learned how to cooperate with them, how to trust them and I discovered that one can rely on others. This bonding experience also taught us that where there is a will, there is a way. It was also beneficial for our German skills. We were documenting our progress using our smartphones; the photos allowed us to notice how our garden was changing.

Initial phase of work on the school garden may turn out to be quite challenging. It is an independent educational project that requires appointing a team, allocating tasks and obtaining seeds, materials and tools. It is also a great way to discover the world of nature (in any language). Photo: Oliwia Kłoszewska

💡 Good advice

The School garden is a place where we can develop most of our key competences (including those regarding languages, maths and life sciences). For this reason it is recommended to adopt a broad approach to work in a school garden and get numerous teachers involved; they can perform various educational activities relative to the subject matter they teach. This unique educational area allows the students to improve their knowledge of basic biological processes, fosters communication – both in their mother tongue and in a foreign language, enables and fosters group work, helps students to learn how to plan and how to be responsible, and increases their initiative. Every school can and should create such an area if it takes seriously the idea of taking school education outside the classroom. There should be, however, one coordinator supervising the project, tasked with collecting information about performed work and making sure that the seasonal schedule is observed. If the green area is large enough, every grade can create its own garden; they are particularly appreciated by the youngest learners.

TIME:
2-3 months, preferably early spring

FUNDS:
there are no costs

RESPONSIBILITY:
teacher, students

Gardens created by students of individual courses are particularly appreciated by the youngest learners. It is a great way of sensitising young students to nature. This illustration features a garden in Primary School in Książenice. Photo: Marcin Polak

MOVEMENT-INSPIRING SPACE

Overcrowded corridors during breaks constitute one of the greatest challenges to the everyday functioning of many schools. How to organise a space where students can engage in activities between lessons in a safe and smart way? Can this space be used to inspire students to physical activity in a responsible manner?

KATARZYNA GÓRKIEWICZ
Primary School no. 9 in Knurów, Poland
Primary School no. 3 in Siemianowice Śląskie, Poland
Primary School no. 8 in Jaworzno, Poland
Primary School in Rzozów, Poland
Private Middle School in Zabierzów Bocheński, Poland

Until recently our corridors were governed by rules and regulations that first and foremost guaranteed students' safety. Unfortunately, they also forbid all sorts of physical activity. Students were expected to be well behaved and stay in their seats during the class, and to be even more civil during breaks - this is how Joanna Mandalka, a teacher from Knurów, describes her school on her blog. It goes without saying that the rules and regulations were regularly ignored, leaving everyone frustrated – the students had an impression that they were forced to live up to impossible standards, while the teachers regularly failed to control rampant chaos during breaks. Teachers and students decided to face this challenge together and jointly designed a solution that would enable them to make good use of the corridors.

Most schools begin adapting corridors for physical activity with one simple trick – introducing a table tennis table. Almost every school has such a table, but it is often available for students only in the gym and exclusively during PE classes. However, when one starts to search for sport equipment in nooks and forgotten storage rooms, it often turns out that the school not only has a tennis table, but also a table football. They should be put in places to which the students have easy access. They should also be carefully located – at a safe distance from windows, glass showcases and other potentially fragile items.

A school in Siemianowice Śląskie decided that it had so much sports equipment that it could be easily put to use outside PE classes; in order to make breaks more attractive, a sports equipment rental initiative was launched. Students can rent skipping ropes, hula-hoops or balls. There is only one condition – they must take care of the equipment and return it. The students are enthusiastic about the possibility to do some jumping or playing the ball during the break. Students in primary schools in Knurów use the sports corner to play 'squash' with table tennis balls and bats, but without a table. They also like to play with a soft, safe ball and keep inventing new variations of 'football' and other ball games. In some schools there are chessboards on the floor or various hopscotch courts.

It is a good practice to develop the rules or regulations of using the equipment together with the students - if they participate in drafting them, they will be more willing to abide by them.

There are schools that arranged common areas for physical activity without incurring any costs. The school football pitch is an ideally suited space for

such purposes. Students and teachers from private middle school in Zabierzów Bocheński drew various shapes and courts on the football pitch, so that they can play twister, board games or practice steps of popular dances during the breaks. Thus arranged space around school may be a perfect opportunity to familiarize children with long forgotten schoolyard games that their parents and grandparents used to know. Students in Siemianowice Śląskie enjoy playing hopscotch or play with a jumping rope. Students from Jaworzno play a long-forgotten game using crown caps; with coloured chalk they draw courts for the crown caps, decorate their "players" and hold great tournaments. We may return to memories of our parents and grandparents to find those forgotten games and have great fun with them today!

Good advice

It is a good idea to analyse whether the school space supports students' physical activity - both inside the school facility and in the surrounding area. Giving the students school corridors and football pitches for physical activity during the breaks is rather easy. However, the attitude of the principal and teachers who are on duty during breaks is of key importance – they need to put their minds together in order to create space for happy, yet safe release of energy for children.

TIME:
preparing the space does not require a lot of time, but it requires ongoing maintenance

FUNDS:
there are no costs (if we use school equipment) or very low costs (in case of purchasing additional equipment)

RESPONSIBILITY:
teachers, students, parents

The corridor is a great place for organising games and physical activities. Photo: Primary School no. 275 in Warsaw

ART IN THE SCHOOL SPACE

School space arrangement plays an important role in the implementation of the requirements of the school curriculum. The curriculum includes numerous references to the world of art and it includes an indication to develop pupils' artistic activities. Hence, it is extremely important that the learning environment give pupils the opportunity to deepen their knowledge of the arts and encourage them to develop their artistic talents. The school's physical space is the perfect place to fill with the works of young artists.

MARCIN POLAK
Local Government Primary School in Ostojowo, Poland
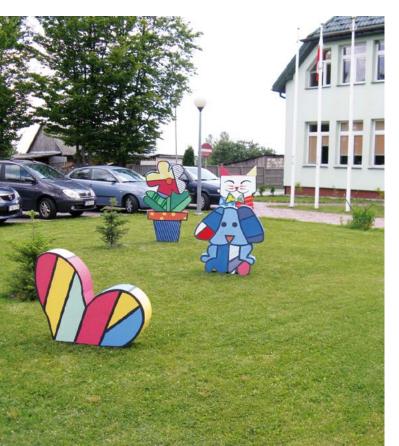**STO School Complex in Bemowo, Warsaw, Poland**

Project activities during which students create works exhibited later in the school space are extremely motivating. In this way they have an influence on the appearance of the environment in which they spend a great time and become co-authors of the space. This creates the feeling of belonging. The child can then say: my/our place, my/our school, I decorated it too.

While such activities often take place inside the school building, they are less likely to take place in areas adjacent to the school. Meanwhile, outside

the building there is space waiting to be decorated. What can we do? A good example is the project implemented in the school in Ostojewo, consisting in making spatial compositions, which filled the school garden.

Works, whose colors and shapes were inspired by the art of contemporary artist Romero Britto, appeared in the garden. This Brazilian artist icombines elements of cubism, pop art and graffiti in his pieces. The colors he uses amuse the viewer with diversity, bold combinations and contrasting shades closed in a black contour. He creates fairy tales characters, shape from the animal world and the world of plants. Vivid colors and bold patterns lend dynamism to his work. It is cheerful, full of happiness and hope. A space decorated with such pieces acquires a life of its own.

The initiator of the project was the school's Principal. The teachers, together with the pupils and their parents, divided the workload among themselves. The projects created were sculptures of plants and animals. Shapes were cut out of styrofoam, paints and tools collected, tasks assigned and then an execution time set. For this project we planned a minimum spending and were able to stay in the budget. The styrofoam for this endeav-

our was donated by a building company befriended by the school. Its staff and parents of our school students gave the material the necessary shapes, designed by the children and under the guidance of their teachers. Acrylic paints in primary colors were purchased, and the children blended other shades by themselves. The resulting colors made the little artists very happy, and they also came up with some interesting names for them as: dog's ear, cat's tail, flower's leaf, the right side of the abdomen of a mouse... After experimenting with color mixing the pupils, in class teams, applied them to the sculptures. After they dried out, they added expression to the works by "enclosing" the colors with black outlines. The result of this visual expression are sculptures that entertain and make happy with their vivid colors. The school garden lawn looks like a fairytale and the school grounds are inviting for everyone.

The inauguration ceremony of the project was held on Children's Day. It was part of a school ceremony during which students received pure white shapes inspired by the works of Romero Britto and painted them. The costs of implementing such a fun art project were minimal, it was only necessary to buy paint that would endure in outdoor conditions. It is worth pointing out that the sculptures were paint-

Reproductions of Romero Britto's works prepared by children and teachers to decorate the lawns surrounding the school. Photo: Local Government Primary School in Ostojowo, Poland

ed in their final destination place: the school garden. There were moments when the wind snatched something, but as a team we also selected the persons responsible in case of such unplanned events. Children's actions had a set goal. Their art project's significance increased thanks to the fact that the results of their work would be seen by everyone, and their activities would influence the image of the school they identify with.

Through a project like this contemporary art and the figure of Romero Britto became closer and better known to children. During their works pupils talked about ways of representing reality and individual interpretations. They learned ways of showing perspective in spatial composition, how to give shapes of nature a geometric character, like Cubists did, the diversity of themes of pop art, etc. Joint activities of this type in the school space show that the space where children get creative is not limited to a piece of paper hidden in their backpack. A wall, polystyrene, stone, wood, they they are all pieces of canvas waiting for a creative touch that can change the grey reality and help disseminate culture in the local community. Such activities around the school can be executed in any educational centre.

Good advice

We should pay special attention to the pupil's ideas and allow them to present them and implement them later on. The activities should be planned to be attractive and engaging for pupils. It would not hurt to contact parents and use their help. To give due weight to the project there should be an event planned, during which students' works will be presented to the school community. Additionally, do not forget about promotional activities (posters can also be works of art) - invite local journalists and artists.

All student reproductions of the paintings originally created by great artists no longer fit in the space of the STO School in Bemowo, hence a small space was arranged to show only recent works, that are continually multiplying. Photo: Marcin Polak

If the school does not have sufficiently large out-doors, never mind, you can fit this kind of artistic activities inside a building. A great example is the gallery of reproductions of the world's greatest paintings at the STO School in Bemowo, Warsaw. The idea was quite simple - Elżbieta Pawlak, an art teacher, wanted to encourage high school students to get an A in arts, so as an assignment she told them to prepare a reproduction of a piece by a famous painter. After seeing the first paintings, the school's Principal decided that it was a good idea to turn a one-time project into a permanent assignment and create a school gallery of master-pieces. The first works were created in the school year 2009/2010 – at present (2015/2016) the gallery holds 229 paintings with new ones appearing on a regular basis.

The success of this initiative, supported active-ly by the art teacher (who helps pupils with the paintings only to a minimum extent), quickly out-grew the capacity of the school's "exhibition are-as". To this day we were not able to show all of the pieces - the largest of the exhibitions consisted of "only" 90 of them. Because the school building is not large enough, only the most recent works are shown. The collection is also proof that it is easy to create great things at school when collective effort is in question. Though at the beginning the paintings were meant to support artistic educa-tion, they quickly became a unique thing, bringing satisfaction not only to teachers but above all to the pupils. By analysing works of art, pupils also discover information arising from history and transmitted in art. In this way, they become aware art recipients.

TIME:
you can start at any time. The first results can be perceived as soon as after a month

FUNDS:
low cost (purchase of paints and materials)

RESPONSIBILITY:
Principal, teachers, pupils

ON DESIGNING A SCHOOL - INTERVIEW WITH AN ARCHITECTS

Małgorzata Kowalczuk talked to Piotr Hardecki and Łukasz Stępniak from the studio "PALK architekci", designers of the architectural concept of the Primary School in Książenice (Poland).

How was the architectural concept of the school developed? What was the beginning of it?

The concept is a development of a contest winning entry. In 2009 we won a national architecture contest for the design of the primary school in Książenice, a town near Grodzisk Mazowiecki. Since the 1990s a large housing development of detached houses is being built there. In means of layout and character it resembles the pre-war suburban garden-cities: Podkowa Leśna, Komorowo, Milanówek.

The primary importance in the shaping of the building was the context and the urban relationships, including the neighbourhood of houses with pitched, red-tiled roofs. It was important to us for the school building to be in harmony with its surroundings.

Did the teachers, pupils or parents take any part in the design process? Or perhaps someone else? What were their contributions?

After the allotment of the contest we could not count on consultations with the managing staff or teachers because the school was still in the organisation process. There were consultations with the municipality and its representatives, among others: the Mayor, the Vice Mayor, the Director of the Department of Education. During one of the meetings we were asked to visit several schools in the area. Hearing user feedback on the use of the installations from teachers, janitors and maintenance staff was a learning experience for us - and a lesson in humility.

Since the appointment of the Principal, at the stage of the construction of the school, we began a close cooperation with her, especially in terms of equipment and furniture. As we aimed for an ultimate expression of aesthetics, we prepared a tender dossier for furnishing the premises. It was a labour-intensive and time-consuming task, but thanks to it we had an influence on how the premises look. It should be noted that the investor was aware of the importance of our work for the final effect - this is not a common phenomenon among public investors.

Did you look for inspiration in architectural concepts and solutions implemented in schools in other countries? What inspired you?

Our inspiration were schools in a strong urban context which are an important element of the settlement or a specific part of town. There are many such examples, also historical. In the 1980s the Danish architectural studio Vandkunsten designed the Fuglsangpark estate in Copenhagen where cars are left on outer car parks and quarters of buildings form intimate streets that converge to a square in front of the school. Every day on their way there pupils pass by idyllic gardens, meadows and bridges over a shallow stream. This is a kind architecture for a human being, for a child. The Danes achieved it in the seventies and eighties. It was the aftermath of the emerging Hippie movement, a form of rebellion against the modernist principles of shaping the city, based on books like the famous: "The Death and Life of Great American Cities" by Jane Jacobs, "A Pattern Language" by Christopher Alexander" or "Life Between Buildings" by John Gehl, written in 1971.

We also took inspiration from picturesque, traditional, small-town architecture. Also, I need to mention a number of projects implemented during the interwar period, such as Żoliborz Oficerski or the Sępolno settlement in Wrocław. Another virtually unknown but an extremely

interesting example of an idea for school build-ing related to the town, as well as to the nearby green areas, is our holiday discovery from years ago - the School Complex in Lębork, consisting of brick buildings with steep roofs, connected by a one storey corridor with a flat roof and a number of courtyards of diverse nature adjacent to a lazy river feeding the moat of the nearby old Teutonic Castle.

How do the external appearance of the building of the school and its internal spaces encourage to go in, to spend time inside, to learn? Are they inspiring and friendly? How?

We wanted our school to be cozy. We deliber-ately reduced the scale, in the entrance area the building was designed to be lower in comparison to the other parts. Through the glass walls on two sides of the rooms you have an immediate view of a green, sunny courtyard with a play-ground - all in order to avoid an overwhelming architectural design. The large building shape was divided into smaller areas and the shape itself brings to mind the archetype of a tradition-al house with a sloping roof. The ground floor classrooms (for younger children) have small gardens and brick booths woven into the fence that can be used to store gardening tools. These elements were used for scale reduction, but also to be perceived as eco-friendly and home-like by the children. Despite our initial concerns the gardens work very well, they are gradually filled with colorful windmills, bird feeders... Children plant flowers and herbs and mark them with signs carrying the names of the plants.

We also tried to apply safe and user friendly solu-tions. One of them is the one applied in the lock-er area. Instead of fairly common, tight and dark compartmentalised rooms we proposed bright, colorful, easily accessible and visible cloakrooms as part of the lobby furnishing. For children in classes I-III we designed cubicles with grids, for grades IV-VI – lockers are used to make orienta-tion at the school easier for the pupils. They are

dedicated to the different age groups, for exam-ple first grade children have a yellow cubicle, yellow doors to their classroom and a yellow wall inside the class. Orange belongs to second grad-ers, red to third graders, while cooler colors like blue, purple, and green correspond to classes IV-VI. The sun blinds placed on the façade have also been chosen to correspond in color.

Is the space inside the building flexible and does it allow changes for various didactic and educational purposes? Are the spaces easy to reorganise (i.e. is the furniture easy to move, can the chairs and desks be ar-ranged in different ways)?

The shapes of the classrooms are similar to a square because the central space is more versa-tile, allows a variety of arrangements, including a teaching circle, or moving the tables to work in groups. With rooms of dimensions approximately 8x8 m a single-sided natural lighting is insuffi-cient. That is why they additionally have a corner window and, on the first floor, also fanlights. The connection passages between large rooms also hold small language laboratories, and on the ground floor there are resting areas available for pupils, with a view of the recreational areas.

The cafeteria was designed as part of the lobby and it is also available outside of meal times. Then it becomes a multifunctional space. A place where children can sit down, do their homework, play board games, etc. We wanted to be able to use the cafeteria in many ways, even after clos-ing the kitchen.

In your project, did you take into account supporting teaching and communication with new technologies? What elements had to be planned in the design in order to make the school more modern and open to new media and communication tools?

When we were working on the project in 2009, neither Wi-Fi nor teaching with the use of mobile

devices were as widespread as they are today. We did not have any guidelines from the investor in this respect. All classrooms were equipped with a computer hub with internet access and with the possibility of connecting a multimedia board, and in the rooms indicated by the management projectors were installed. Computer workstations with internet access were included in the design of the library. Of course in the school premises there is also a computer lab.

Does the school provide a space for sharing teaching resources and work results (i.e. library, auditorium)?

Due to the long shape of the plot the school does not have a typical concert hall or auditorium, this function is taken over by the gymnasium and a two-storey main hall with the cafeteria. We tried to give these spaces an appropriate architectural expression, more friendly than monumental.

The library, with a multimedia area and a corner for the youngest children, is visible from the lobby through a glass wall. As a joke we could say that in the central part of the school one can satisfy both the needs of the body - in the cafeteria, and the soul - in the library. And then - just going straight - run out into the courtyard, the playground...

What architectural solutions did you implement to enhance the physical and motor development of the pupils? Does the school environment (field, square, garden, etc.) positively influence learning and relaxing?

According to the competition prerequisites, the school environment was to provide an attractive setting for all kinds of outdoor activities, which are an antidote for the children's (and their parents') increasingly static way of life. In the landscaping project we proposed two pitches, a running track, a playground and gardens outside the classrooms.

The plot we had available was quite small for the needs of the school. In addition, after the contest it turned out that it lies at the lowest point of the estate and the rains create a pond of rainwater in the centre. There is no place to drain the water and the groundwater level is very high and makes drainage impossible. Our designer friends from a landscape architecture studio proposed an efficient, and at the same time attractive to the eye, solution that complies with new ecological trends of managing rainwater. Everywhere other than the pitches and the paved surfaces they designed shallow grassy basins, designed to absorb the water coming from torrential rains. Even the toys on the playground were brought higher on platforms covered with a synthetic material, while the lawns between the platforms can safely take in as much as 20-30cm of water. Within a few days this water soaks into the ground. Between the "islands" bridges have been set up, field stones scattered and reeds and other plants planted. Currently, the area around the playground looks picturesque, there are even frogs there. Also, all flat roofs over the school building are covered with vegetation.

Is this building eco-friendly? Is it energy efficient? Is it safe for pupils and teachers?

Ecology is a very broad term. We tried to use natural, non-allergenic finishing materials. In place of the ubiquitous PVC flooring that according to some sources could lead to asthma and other equally serious health complications, we used natural linoleum. The walls that are exposed to particularly heavy use were built of ceramic brick.

A huge problem in Polish schools, also the newly designed, is the acoustics. In classrooms without sound absorbing materials, the sounds undergo multiple reflections, which in turn makes it very difficult, and in extreme cases even impossible to conduct classes. During the construction, the investor was somehow wary towards our documentation records regarding the use of suspend-

ed ceilings in both the rooms and the corridors, treating them perhaps as an unnecessary cost addition. The only areas in which we did not plan to instal sound absorbing ceilings were the common rooms (we do not know why but it seemed to us that this is a place where children play and do their homework quietly). Already in the first week after the opening of the school we received calls from the department of municipal investment asking us to add acoustic ceilings, because the teacher responsible or the children in the common room cannot bare the noise... while in all the other areas there were no problems with the acoustics.

Another important issue is the ventilation. Originally we tried to design a school based on gravitational ventilation, however, further analysis proved that the provisions in force concerning energy efficiency cannot be satisfied without the use of heat recovery ventilation systems (recuperation), thus mechanical ventilation. Part of the pipes was exposed in the interiors, giving them a slightly "industrial" feel.

The application of mechanical ventilation with heat recovery is a response to the increasingly restrictive provisions on energy efficiency. In addition to the advantages, it also has disadvantages. First of all it is expensive, both at the stage of construction and use. Second, after years the tubes become a hotbed of dust and microorganisms. Third, a defectively designed or constructed ventilation installation can be a source of noise, which is annoying especially in rooms for studying.

On a side note, in existing schools in Poland, especially in the schools built in the 1950s after a heat efficiency refurbishment, the topic of ventilation is a common, still not widely identified problem. Insulated with polystyrene, with new, air tight windows, with one ventilation grille per classroom, the classrooms have practically no ventilation. It is quite possible that children's problems with concentration are caused simply by a too high concentration of carbon dioxide in the air...

Is the building energy efficient? In accordance with the latest standards, probably not. However, you need to consider that in as little as a few years the current standards will be out of date, that is the speed of legislation changes in this field. The issue of energy efficiency in large schools brings architects before the following dilemma: one of the basic indicators of energy efficiency is how compact the shape of the building is, that is, they need to make the ratio of the external walls area to the area of the building as small as possible. However, it often happens that for the sake of a proper setting in the environment or reducing the scale to adapt to small users, it seems appropriate to fragment the solid shape, and hence a conscious resignation from energy optimisation.

Is the building safe? We have made every effort to ensure that it was so.

What is your vision of "School of the future"? How do you define a modern learning (studying) space? What characteristics should it carry?

In our view, it is not possible to create a vision of "school of the future" only by architects, without the participation of teachers. To create innovative space and architectural arrangements you need a parallel, new vision of the school functioning as a community. In Denmark, where the theory of education and its impact on the architecture of school buildings seem to be far more sophisticated and diverse, there are two types of schools. The first are structures selected by a professional jury, made up of architects and representatives of the local authorities, in contests. These are usually buildings with beautiful façades, delightful proportions and correct, sometimes banal views. The second type is generated during multiple, tedious meetings of architects with educators from a school with an

individual curriculum. The buildings created in such situations are not original on the outside but have unique and fascinating interiors tailored to the individual needs of their users.

When observing the new school projects in Scandinavia, you can venture to say that there is a need for spaces that allow a more flexible use than the existing, structurally formal school facilities. A good illustration of this trend seems to be the expansion of the famous school of Arne Jacobsen in Copenhagen (Munkegård School) executed by Dorte Mandrup.

Following closely the debate on Polish education we noticed no trace of similar expectations. It seems that since transferring the obligation to support primary and secondary schools to local authorities, the efforts of investors and designers focused mainly on cost reductions for both the construction and maintenance of the new facilities. Sometimes this cooperation brings satisfactory results.

What is, according to you, the position of the school in the community over the decades? Did the project include solutions allowing the school to "open" towards the parents, the local community, seniors (in the spirit of lifelong learning)?

The decision on the environmental character of the school in Książenice was obvious for us.

One of us [Peter Hardecki - editorial note] has been teaching at the Faculty of Architecture at the Warsaw University of Technology for many years, during combined lectures about urban planning and architecture he shows students how to design both: friendly city areas and school buildings, with relation to the public spaces that they will shape and enrich by definition. One of the conditions for this task is the creating at the entrance to the school a city square, another, that the school should be divided into two areas: one called environmental, open for the local inhabitants (library, cafeteria, gym/fitness, specialized and language labs), and the other didactic, closed after class. We adopted a similar idea in Książenice. It was appreciated in the verdict of the jury, and in fact, now the building serves the local population as in the afternoons it is a kind of a local cultural centre.

At the entrance to the school a square was created and it works as a "public space" for the community. It is used for organising festivals and it is customary to place the start and the finish line of the running competition "I run because I like it in Książenice". The playground is open for residents, on school grounds there are activities and meetings for children and adults, and events of supra-local character.

Life has taught us that architecture is important, but the most important part of the school are its people. The school in Książenice has a great management and staff, the teachers take advantage of the opportunities that the building creates. It is primarily their merit that the school is "alive" in the environment of the inhabitants. At the end, the building is only a complex tool in the hands of the people, nothing more.

CONCLUSIONS

All ideas for the organisation of the educational spaces described in this publication can contribute to building a better learning environment for the students that attend it. To ensure that the changes in the school are not only changes of aesthetics all actions must take into account the primary objective: the didactics. We can change schools in a thousand ways, but changes that support better, more effective and enjoyable learning are those that are most justified. Not teaching, but learning – both among pupils and teachers (because the latter also need to constantly learn in a modern school and cannot stop the development of their skills). A school project begins with the design of the learning process and not the design of the physical space in which this process occurs. Education first, followed by small and big architecture.

As we mentioned at the beginning of this guide, there is a very probable risk that the proposed solutions, beyond the visual ones, will not have much in common with a modern and multi-functional educational space. This was confirmed by the British experience during the implementation of the government's program Building Schools for the Future (2006-2010) when it turned out that there simply are no designers who have a sufficient knowledge on education as to execute such an ambitious plan and the participation of staff and pupils in the design process was too limited. Therefore, the first phase of the works is very important - the conceptual phase which should be started with a discussion (even in a small group) about the place of the school in the community in the perspective of several decades, raise some key questions and seek answers.

Instead of starting by designing a physical space, try to determine which educational programme you want this school to pursue and whether the existing structures help or hinder you in its realization.

– dr Betty Despenza-Green[25]

When thinking about the changes – especially in architecture, which are usually the biggest – it is good to start by asking a series of questions and try to answer them. These questions should be addressed in a team consisting of all persons concerned: representatives of the school community (school management, teachers, parents, pupils), the investor, the architects and designers.

Here is the first group of questions: What kind of educationdo we expect in the future? (Instead of: what school buildings do we need?) What kind of learning processes and what relationships do we want to support? (Instead of: how many classrooms do we need?) What competencies do we want to develop? What tools and resources are available to support learning?

The second group of questions must concern the place of the school in the community. So these are questions about the relationship with the community (formal and informal), the cultural context (the school as a cultural community), working with individuals and institutions in the local community.

The pupil is to be the nucleus of learning, we cannot ignore the personalisation of teaching. We are designing a school of the future for the students of the future, so let's try to answer the following questions: When do pupils study? Where do they study? What do they learn? With whom do they study? What tools do they use? Let's try to find the answer to the following: To what extent is the newly designed learning space going to allow, encourage and facilitate a more personalised learning process?

Next: to what extent will the newly designed learning space provide flexibility in the implementation of the program and conducting experiments? How will the new spaces enable us to easily use a different set of resources, expertise and knowledge, in response to the the changing 21st century learning objectives? We should beare in mind that when thinking of the learning space, we do not only mean the assimilation of information and processing it into knowledge, but we also need to think about designing a space to develop skills and shaping attitudes of: collaboration (working together), innovation, sense of initiative and creating knowledge together. In a way, this new educational space should also stimulate the transformation and development of a new pedagogy for the twenty-first century.

Finally, at the end, ask questions about the flexibility of the educational space: Does it allow the learning process to occur in many places in the school and in different configurations of participants and resources? Does it allow to use different approaches to learning? Does it allow a free use of modern digital educational technology in the learning process? Does it create conditions for freedom of creating and using online social networks for students?

The beginning of a successful educational space design - no matter how wide the scope - should be a school debate that would deal with a vision of the transformed place in the context of the whole educational activity of the educational institution. This conversation should not be omitted neither when building nor refurbishing existing buildings or their parts. Visions developed in a wider circle make the realisation of the goals easier and allow to embed changes in pedagogy, as well as to understand better the challenges that young people attending the school will face in the future.

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14   *Elementy przestrzeni jako doświadczenie edukacyjne*, ibidem.

15   Tim Rudd, *Reimagining outdoor learning spaces. Primary capital, co-design and educational transformation*, Futurelab, 2008.

16   See *Learning Spaces Framework: Learning in an online world*, MCEET-YA – Ministerial Council on Education, Employment, Training and Youth Affairs (Australia and New Zealand), 2008

17   See Tim Rudd, Carolyn Gifford, Jo Morrison, Keri Facer, *What if... Re-imagining learning spaces*, Futurelab, 2006.

18   After: Stephen Heppell, [in:] Building Learning Futures, Ultralab, http://rubble.heppell.net/places/media/final_report.pdf, 2004. Accessed on: 10 September 2015

19   See Tim Rudd, *Reimagining outdoor learning spaces. Primary capital, co-design and educational transformation*, Futurelab, 2008.

20. See: John Hattie, *Visible learning for teachers. Maximising Impact on Learning*. The Centre for Citizenship Education, Warsaw, October 2015. Series: library of the SUS Academy; Civitas.com.pl. / John Hattie, *Visible Learning for Teachers: Maximising Impact on Learning*, Routledge, December 2011, ISBN 978-0415690157. See: *Research into the connection between built learning spaces and student outcomes*, Education Policy and Research Division Department of Education and Early Childhood Development, Australia, 2011; http://www.education.vic.gov.au/Documents/about/programs/infrastructure/blackmore-learningspaces.pdf. Accessed on: 31.12.2015.

21. See: *Research into the connection between built learning spaces and student outcomes*, Education Policy and Research Division Department of Education and Early Childhood Development, Australia, 2011; http://www.education.vic.gov.au/Documents/about/programs/infrastructure/blackmorelearningspaces.pdf. Accessed on: 31.12.2015.

22. See: Peter Barrett, Yufan Zhang, *Optimal Learning Spaces Design Implications for Primary Schools*, Salford Centre for Research and Innovation, SCRI Research Report, 2009.

23. Studies and observations lead in the Primary School in Budzowo (Poland), the first Polish school in a passive building, show that such an air circulation system has positive effects on pupils (less sick kids, lower absence rate, they are not sleepy in class). See: Anna Dudzińska, *Wstępne pomiary mikroklimatu wewnętrznego pierwszej w Polsce szkoły o niemal zerowym zużyciu energii (Initial measurements of the internal microclimate at the first school in Poland with almost zero energy consumption)* 2014, http://www.stoszowice.pl/download/File/aktualnosci/2014/pazdziernik/Wstepne%20pomiary%20mikroklimatu%20w%20pierwszej_w_Polsce%20szkole%20pasywnej%20AD.pdf. Accessed on: 31.01.2016.

24. Heinrich Frieling, *Gesetz der Farbe* (*Color rules*). Göttingen, Muster-Schmidt Verlag, 1992.

25. Statement quoted in the book *21st Century Skills: Rethinking How Students Learn*, James A. Bellanca, Solution Tree Press, 2011, ISBN: 978-1-935249-90-0.

26. The list of question have been created on the basis of: *What if... Re-imagining learning spaces*, Tim Rudd, Carolyn Gifford, Jo Morrison, Keri Facer, Futurelab 2006.