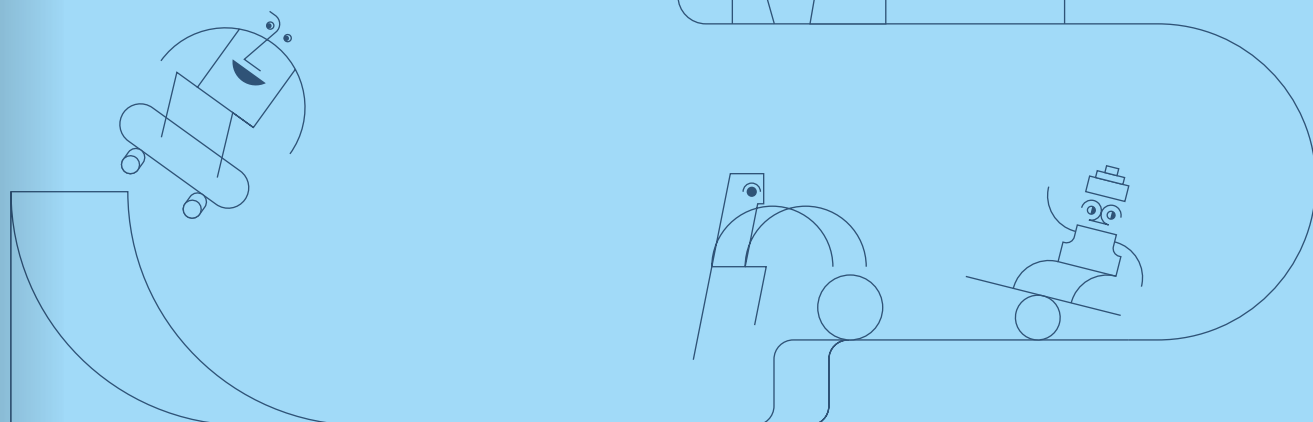
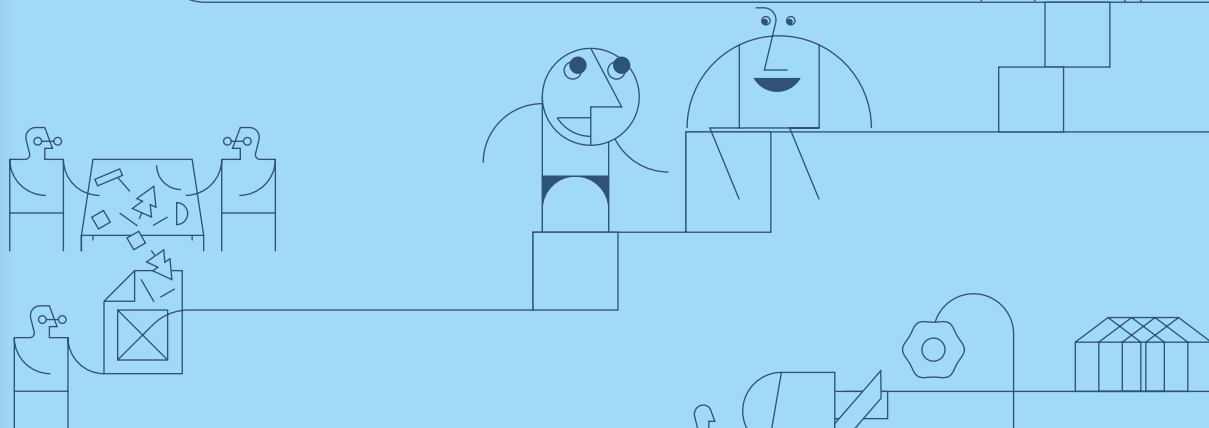
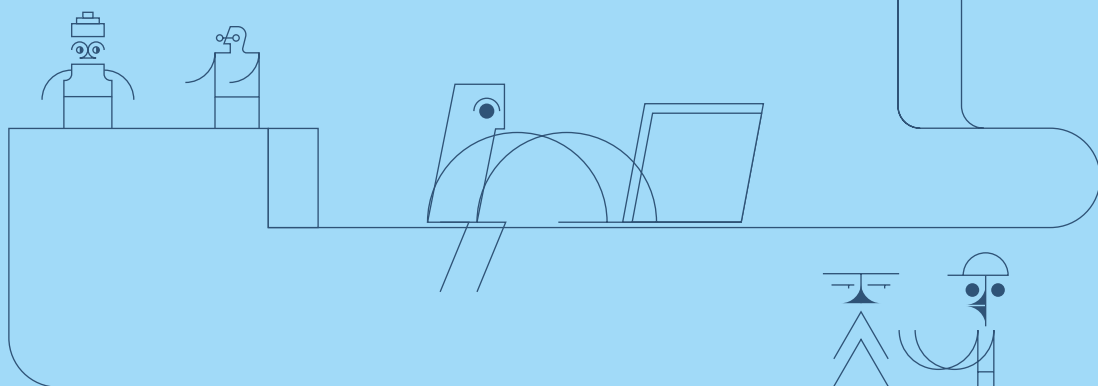


# CHANGING LEARNING SPACES

Guidelines by the Estonian Association of Architects  
on designing contemporary learning environments



The publication “Changing Learning Spaces” is a continuation of the conference bearing the same name organised by the Estonian Association of Architects and the Ministry of Education and Research in spring 2018.

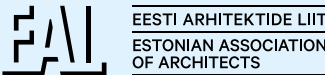
Illustrated with numerous photographs, the publication is primarily meant for heads of schools, teachers and local government leaders, but also for architects preparing for the process of designing new school buildings or renovating existing ones. It includes various examples of architecture, interior and landscape architecture in keeping with the new learning concept.

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# FOREWORD

*“We shape our buildings, thereafter they shape us.”*

— Winston Churchill, 1943<sup>1</sup>

The possibilities available at home, work, school or in the city define the way we move around, spend our time, communicate and feel. They either support or inhibit our work and learning. Similarly, it is not an insignificant fact that buildings are also important bearers of memory, identity and ideas.

Every year, both students and teachers spend the better part of their day at school. The school is the main public space and social environment where students look for validation for the acquired general and specialised competences in real life. The learning space is the framework in which daily activities shape the student's personality and that allows the teachers to help him or her effectively in the process. A good learning space is well considered and conceptualised as a physical, mental and social environment.

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<sup>1</sup> With these words, the great British statesman Winston Churchill commented on the restoration of the Houses of Parliament after the bombing in the Second World War. He understood that our daily life is inevitably and closely intertwined with the built environment.





The implementation of the new learning concept is supported by the new learning spaces. A contemporary school building with its surroundings is a versatile learning environment allowing all areas to be used for learning. Frederiksbjerg School, Aarhus, Denmark. Architecture Henning Larsen / Photograph: Hufton+Crow



# CHANGING APPROACH TO LEARNING AND EXPECTATIONS TO SCHOOL ENVIRONMENT

The future society is shaped today as the future depends on current students' mindset as well as skills and competencies they obtain. It is important to understand that well-being and desire to study are formed on emotionally, psychologically and physically sound learning environment. Therefore, it is crucial that education policy makers bear that in mind, especially in there unprecedented times the COVID-19 crisis has caused.

Estonia's strategic education development plan for years 2021 to 2035 aims to provide a network of educational institutions that provide quality, inclusive, equitable and sustainable education. We seek to make our education more accessible and shape a learning environment that would support modern approach to learning.

Over last ten years, the government of Estonia in cooperation with local municipalities and communities have reformed school network in order to make it more sustainable, deliver better quality and set learner in the center of the attention. We have come to an understanding that better education requires more meaningful cooperation. By 2023, 26 upper-secondary-education-only schools have been established as state high schools – the government helps, enriches and nurtures local communities by helping with providing education.

COVID-19 crisis has shown that learning environment is more important than ever. Of course, sound learning space at home is necessary, but education cannot happen only from a distance. Therefore, we need to create home-like, cozy, personal and diverse learning environments on schools.

International architecture competitions are held to plan new school buildings in Estonia, because we think that the key to success relies in cooperation. We see that international and local expertise create synergies that help to find solutions that take into account our aims, but as well as find great balance between demographic or geographic situation. Collaboration must be in focus from the very start: we need to understand which competencies, values or ideas new school building shall foster, cultivate and boost, but also engage teachers, students, parents and public.

It must be stressed that smart approach to modern, future-oriented education does not mean added square meters, instead this physical form of education helps to frame concepts. Modern take on school environment and space must support the needs, personalized learning, choices and options. But also allow to take responsibility and make mistakes. In the age of data it not only necessary to know facts, but also understand why one must learn and obtain competencies. Alongside specific knowledge we must obtain universal learning competence.

Although we learn through our lives, day by day, skill by skill, we must bear in mind that the time is limited, especially in formal education. Therefore, we must build spaces that make the most of this time.

We are eagerly ready to share Estonia's examples, knowledge and ideas. I encourage to get in touch with us – see more at [www.educationestonia.org](http://www.educationestonia.org).

Wishing you new ideas,  
**Kristi Vinter-Nemvalts**  
Secretary General  
Ministry of Education and Research of Estonia  
May 2021

# THE LEARNING SPACE: FOR WHOM, WHY, HOW?

The current publication was initially written for Estonian readers as we were in the middle of an educational reform including the change of the content of the curricula as well as the reorganisation and renewal of the physical school network infrastructure. Now is the time to conduct a critical evaluation of the learning spaces. The aim is to align the school buildings with the location of population and the demographic forecasts while also increasing the quality of the education provision. The state is building new secondary schools and supporting local governments in reconstructing the basic schools<sup>1</sup> which includes both constructing new school buildings and renovating or even demolishing current ones.

The publication in English is intended for a wider international audience and thus site-specific sections have been either changed or equipped with comments. Education with the learning space forming an integral part of it is a global issue and requires changes in various parts of the world, so we hope that our small country's experience and the given publication can benefit as many people as possible. We have similarly collected examples from Europe and all over the world, not merely from Estonia, where we are only in the process of designing and building new spaces.

## THE SPACES SUPPORTING THE NEW CONCEPT OF LEARNING

Construction should always aim at the creation of an environment of the best possible quality. It is very important to weigh the options before making decisions about where and how to build or what and how to renovate. The contemporary school buildings are no longer mere shells for instruction complying with cer-

<sup>1</sup> The Estonian general education system is divided into three levels: grades 1-4 stand for the primary school, grades 5-9 the basic school and grades 10-12 the secondary school.

tain standards. A good school building is smart and open to changes – it flexibly supports the learner as well as the teacher and it can also function as a study aid itself. A unique school supports people's identity and sense of belonging. When creating such an environment, architects can come to your assistance.

In addition to the changed concept of learning, the lifelong learning strategy of various countries also describes the contemporary learning environment: it is the synergy of the mental, social and physical environment that supports the student's development into an independent and active learner. It is not reasonable or even possible to separate a part from the whole. Thus, it is only natural that the renewal of the school environment is implemented in close cooperation with architects from the very beginning, that is, from drawing up the brief. Designing a school building requires a comprehensive vision from the client as well as the architect. A good result is based on a good brief.

## WHAT KIND OF SCHOOLS EDUCATE SMART AND HAPPY CITIZENS?

The physical environment has a considerable impact on the enthusiasm that drives students to study and teachers to teach. The current younger generations need better social skills: expressive means, appreciation of diversity, creative and critical thinking, risk taking as well as coping with failure. All this can be supported (or also hindered) by the school space, thus providing an environment that shapes young people's ability to cope in the world. It is an environment allowing youngsters to reveal their talent and excluding no one. Such a vision is definitely a challenge also for architects – how to convert such goals into spaces?

Researcher and educational psychologist of Tallinn University Grete Arro has said that the physical school environment should consider the basic psychological needs: autonomy and the sense of competence and belonging that make young people act in their environment without external pressure and form the basis for the feeling of happiness and well-being. These are the principles that should be considered also by the compilers of the school building brief and the architects.

Substantial investments require wise decisions. It is highly important that every school project begins from a vision and a good brief, followed by the best respective spatial idea with its construction to the highest quality. Designing a school environment today requires that all stakeholders make informed decisions on the issue. The current publication is also here to assist. Enjoy the reading and give it a go!

**Kadri Klementi, Katrin Koov**  
Architects, editors of the publication



A learning space is a comprehensive whole with the indoor and outdoor areas providing versatile possibilities for learning, playing and physical activity. Variety is highly important for restoring children's capacity to learn during the day. Frederiksbjerg School, Aarhus, Denmark. Architecture Henning Larsen / Photograph: Peter Nørby





# THE SCHOOL YARD: AN INSPIRING SPACE FOR LEARNING

Activity areas for children could be divided into those based on equipment and those based on space(s). In case of the former, the activities tend to be strictly predetermined: the factory has set the particular uses for the attractions while any other approaches are generally forbidden or prevented. Such a strict separation gives preference to children with particular physical features or abilities (e.g., height, resilience, strength of arms). Areas of activity designed by means of various spaces or sections do not give any such advantages: places with fewer restrictions on use provide further possibilities and thus challenge children's physical abilities as well as their creativity and inventiveness.

In landscape architecture, such an approach is called Bullerby model that is explored by professor at Aalto University Marketta Kyttä.<sup>1</sup> It stands for an inspiring child-friendly and safe environment based on the concept of affordances, that is, the feasible freedom of action for everybody. In such carefully considered environments, children can freely operate according to their capabilities: children usually tend to have different understandings of feasible ideas and all alternatives need to be equal. No child should ever think that they are too small or too big, too weak or too clumsy for this playground. The most apparent example of such an environment is a simple sandbox where every toddler can find a game suiting his interests and abilities – there are no “right” games prescribed or “wrong” ones forbidden. Older children expect their environment to be something more than a mere sandbox, however, providing the same kind of freedom.

<sup>1</sup> M. Kyttä, Environmental child-friendliness in the light of the Bullerby model. – ed by Chr. Spencer and M. Blades. Children and their environments. Cambridge University Press, 2006, pp 141–158.

## MOBILITY AS THE BASIS OF FREEDOM

The active use of environment is directly related to the independent mobility of children and youngsters. Instead of the activities arranged or controlled and restricted by adults, the Bullerby model prefers diverse options and freedom of activity. Moving around opens up new possibilities in the environment with every new discovery encouraging further exploration and activity. Affordances emerge in the interaction between the child and the environment: children or youngsters need to be smart and active to discover and deploy the possibilities offered by the environment. It provides both mental and physical challenges. In the ideal case it would be a practical and diverse environment: a rural and urban space that provides schoolchildren with plenty of opportunities to explore the places on their own and to be included naturally in the everyday activities. The reverse is offered by an area with monofunctional attractions clearly separated from the surroundings.

## HOW TO COMMISSION AN EFFECTIVE SCHOOL YARD?

When commissioning playgrounds or sports grounds, an important role is played by norms and standards. In addition to safety requirements, the brief should also include features based on the peculiarities of child and youth psychology as well as on their particular use of space. A well-commissioned and well-designed environment will support individual development and the general competences listed in the state curriculum. Play is the work of the child and the playground is his workspace.

**Karin Bachmann**  
Landscape architect



A contemporary learning space considers the learner's basic psychological needs including autonomy – the feeling that one can make independent choices, competence – the feeling that one can handle challenges, and involvement – the feeling that one has meaningful connections with others. The flexibility and options that the space offers must be considered before designing the school. Frederiksbjerg School, Aarhus, Denmark. Architecture Henning Larsen /Photograph: Hufton+Crow



# PEOPLE AND LEARNING

Tiiu Kuurme

Associate Professor of Educational Sciences at Tallinn University

People have few natural instincts that allow quadrupeds to cope with themselves and their surroundings. People cannot hand down the skills to live genetically and these need to be acquired through learning. This, in turn, provides people with ample opportunities and a special place in the mystery of life – to take their course of development in unforeseeable directions, design their personal and unique path in life and survive also in impossible situations. People's capacity to learn is astounding, while their will to learn is unfortunately unstable and their learning skills have become a learning value in themselves. The more complex the civilisation and the richer the layers in culture, the more our society needs to take care of the learning of the next generation. Various educational institutions have become one of such cultural layers where the feasible arrangement of learning requires increasingly more knowledge about learning as such.

The conventional understanding of learning stands for changes in the horizon of consciousness. Your worldview expands and develops, you acquire new skills and you understand situations and things better. A boost is given to the development of both purposeful and intuitive ability to decide which skills and knowledge work in various situations, environments and communities. Learning is not merely the acquisition of new information but a comprehensive knowledge shaped at the intersection of various types of information and its manifestation and practise in activities and behaviour.

The significance of learning to an individual as well as to the society is multifaceted. By learning, we gradually domesticate the world in its physical and spiritual, historical and contemporary dimension. We create a conceptual framework to bear the reality and keep situations under control. In addition to providing skills and knowledge, experience allows us to value things and phenomena and learn about the opportunities given by life, we can face the future and not only by navigating it but also by reshaping it. And as we know, up to very dangerous limits. The fate of civilisations, societies and cultures will depend on what and how its people learn, now already despite their age.

The ability, ways and motives to learn new things vary by age. The smaller the child, the more significant role in their learning is played by senses and motor skills. Children become convinced once they can touch, explore, check, test and experience – this way they also experience the potential of their own body, senses and imagination. When observing life with an open mind, they gain experience that they have no explanation for, this will arouse childish curiosity, interest and the wish to search for the meaning, in other words, to acquire wisdom. The emphasis on verbal expression and abstractions that remain alien to children's perception extinguish the tinkle in their eye, smother their interest and make learning the enforcement of somebody else's will. The most important thing motivating people to learn as teenagers is their own mysterious Self and the need to figure out their own abilities, virtues, disadvantages and perspectives. Several researchers have pointed out that the most important thing for youngsters today is to know themselves, navigate in their own wishes to avoid wasting time on wrong things. As creating identity is more difficult than ever before: nothing is given, there are no clear objectives, borders between generations and cultures are blurred, affiliations to a place, nation and origin grow weaker while there are endless new opportunities and we need to choose between forced options. Excessive knowledge tends to be more exhaustive than lack of it. According to researcher of learning Knud Illeris, young people are motivated more by the question of identity than professional ambitions, as figuring something out oneself is the prerequisite for one's course of life. It is also one of the reasons why people prefer to study fields that explore the society and human nature. Humanistic educational theories see subjects as the means to open and develop a child's various facets, not to prepare workforce for the labour market. It is the abundance of choices and the compulsion to choose that has brought about the essential change in learning and placed considerable responsibility on people who create learning environments and select the learning content.

When talking about learning in the contemporary perspective, we often hear concepts such as *holistic*, *experiential*, *reflective* and *social*.

**Holism**, that is, the pursuit of wholeness aims at covering as many dimensions of learning as possible, including comprehension, meaning, horizons, skills, body memory, cultural and social orientation, self-awareness and acknowledgement of one's own feelings. Janani Harish calls for the appreciation of imagination and creativity in learning in order to overcome calculating reasoning and explore the possibilities of consciousness, for instance, by developing spiritual capabilities and intuition. Garry Jacobs claims that the knowledge we currently need about learning is how human beings think, feel, act, communicate, respond to others, create, search, find, cross boundaries and employ the possibilities of their mind. In many countries, people learn how to read but not how to understand the meaning of the text. However, by stressing the importance of remembering the external takes the mental energy from the higher processes of comprehension.

The concept of **experience** crowns all attempts to understand learning. Researchers agree that life itself is an incredible learning experience with all our senses, feelings and exposures involved and conceptualised. Even the various states of our con-

sciousness provide an experience that teach us something about ourselves. Peter Jarvis defines learning as the transformation of experience into knowledge, skills and attitudes. When learning, we deal with our experiences, attribute them with meanings and categorise into convictions and understandings about people, events and situations. We construct our worldview and outlook on life by involving the current content of our consciousness with its structures, rules, criteria, codes, schemes, standards, values and dispositions. Quick experiential learning takes place when we are faced with a crisis or a predicament and mobilise all our inner forces.

**Reflection** or self-reflection plays a special role in contemporary understanding of learning. As we get older, we become more aware of our characteristics, strengths, feelings and their sources as well as our ways of making mistakes. It also includes observation of our feelings and fears, recognising our comfort zone, handling guilt and shame, making conclusions and hopefully also conscious changes in our nature.

Learning is essentially **social** and communicative – man's coexistence and togetherness with others have made researchers of learning acknowledge the fact. Roger Säljö stresses that the learned content as well as the learning process acquire their meaning in particular socio-cultural conditions. The learning approach currently dominating the western world – social constructivism – is focussed on the social nature of learning, as knowledge is similarly created in social interaction and it often bears the mark of the controlling clique of its society. As a member of social communities, we learn to live among others, see life from various perspectives, uphold dialogues with others, create and maintain relations and grasp their various nuances, solve situations and join forces. A person's individuation and morality are similarly the result of social interaction, while learning is provided further meaning also by the situation and the environment where the learning takes place.

However, learning is social also in another sense, namely, in all societies there has always been the wish to control and guide people's learning, which is particularly evident in authoritarian regimes. Curricula are thus the social contract of various interest groups with the structure of the learning process subjected to a powerful pattern that tends to stress the learner's dependence rather than free their spirit. When talking about learning in free societies, we often come across the concept of indoctrination (there is no acknowledgement of the term in societies that are not free). It stands for the learning of knowledge, ideas and values as beliefs. Teaching comes with the explanation that this is how it has been prescribed, with no clarification of the origin and meaning of the ideas taught. An indoctrinated person is usually capable of critical analysis of the taught material and may become easily manipulated. A good student usually knows what is asked, adapts, agrees and does not ask too many questions himself. In capitalist societies, where a learning person has become a labour market resource and a potential consumer, learning is also led by disciplinary regimes in order to produce citizens in keeping with someone's pragmatic expectations: effective, flexible, self-sustaining, patient, mobile, rational and adaptable.



It has long been known that space shapes mental states and thinking but also the perception of one's position and possibilities. The architecture of schools has implicitly supported the ideologies dominating in education that stem from the zeitgeist or political regime. For instance, when schools were called temples of education to make people feel reverence for learning, they also built school buildings inspiring sublime mental states that allowed our imagination to find characteristics of temples. In schools built during the totalitarian period when the main goal was to subject individuals to the governing ideology and obedience, we find narrow corridors with high ceilings, rows of closed doors, numerous rooms forbidden for children as well as other elements that made them sense their smallness. During the industrial period when schools were similarly operated on the manufacturing principle, school buildings tended to resemble factories. A rational school ignorant of emotions is angular, economical, sterile and pragmatic with control expanding on everything. Waldorf schools have their own particular architecture (Goethean architecture) that avoids angular spaces as they are supposed to make also thinking angular. Here you will find numerous alcoves and various spaces allowing intimacy and cosiness, the classrooms are painted in pastel hues with the colours selected on the basis of the particular age group's needs. In a school that values experience, social interaction and opening human potential, it is important to provide the means for various activities, studio-like spaces, areas for communication, cooperation as well as isolation that would encourage various learning methods and help to create a diversity of situations.

People learn from everything, with all their senses and the potential of their consciousness, however, many of their life skills are learned subconsciously through various situations. Their way is lit by the acquired values and belief in themselves or the beliefs (instilled by others) about themselves. We also know that it is possible to learn helplessness. For a long time, societies have upheld special institutions for learning, that is, schools that are undergoing considerable changes at the moment. The era of text-based learning that considers students as passive recipients of knowledge is gradually approaching its end, as the highly complex problems faced by contemporary society as well as the globally competitive economic systems no longer need "people who have learned all knowledge". Today we value activity, entrepreneurship, curiosity, innovativeness and creativity. Garry Jacobs recommends changing the focus in learning organisations from information to comprehension and thinking, from passivity to activity, from learning fragments to integration, from subjects to personality, from reproduction to creativity, from the abstract to the contextual.

As we know, schools are the hardest and slowest institutions to change, with their work arrangements firmly rooted in the past although their aim should be serving the future. Over time, the assessment system has been used by the hidden curriculum to shape the competences needed for contemporary labour, for instance, orientation to performance and the hired worker mentality. In writing, the individual was an end in itself, in reality, means to keep the school running. The relationship between the school and the world of work will probably remain the same, while there will be changes in competences. These we recognise from

the expectations prescribed for the school and its dominating values. Humanist educationalists and researchers of learning will continue to formulate the ideals of individual development also in the future, however, the operating culture of contemporary schools already includes increasingly more methods that require activity, creativity, research, playfulness, experiential learning, communication and personal responsibility that were originally developed in Europe, including in Estonia around a hundred years ago.

In terms of future perspective, we are talking about genuine and authentic learning as well as the various individual learning paths that will hopefully also consider the varied needs for learning environments. We do not know yet how it will affect the learning of current children whose childhood differs considerably from that of earlier generations. Similarly, it is difficult to predict how the interest groups behind current ideologies will implement the regimes of their truth in new contexts. Is it possible to prevent the invasive superficiality and fragmented shallow knowledge about everything and about nothing that is bound to lead to ignorance, we can't be sure. However, the controversy between the noble cause of education – an individual as an end in itself – and the daily practise will certainly persist as people will always remain a means to some kind of end. How will teachers adopt the transforming teaching methods, we do not know this either. It does, however, require considerable changes in one's understanding of man and personal work philosophy. School culture and its functioning are now in the hands of the practitioners more than ever before and the beautifully, consciously and functionally designed school buildings providing the means for various life situations will definitely contribute to the endeavours of people with good will.



# A LEARNING SPACE IN MOTION

Merike Kull, Kerli Mooses, Maret Pihu, Leene Korp

Move Lab, Institute of Sport Sciences and Physiotherapy of University of Tartu

## DO OUR CHILDREN GET ENOUGH EXERCISE?

Exercise is natural and necessary for people, with physical activity supporting our mental, physical and social health in several ways. The well-known positive effect of physical activity on children, youngsters as well as adults is related to physical health such as lower weight, better cardiovascular condition, stronger bones and improved blood counts. Then again, there have been increasingly more studies highlighting the beneficial effect of physical activity also on learning ability, including academic results and concentration.<sup>1</sup> In addition to physical activity, it is also important to note sedentary lifestyle that is considered a separate health risk<sup>2</sup> with an increasingly stronger impact also on our children and youngsters. We have reached the “sedentary era” where extra effort needs to be made to ensure that the younger generations get enough physical activity.

**From the perspective of healthy development, children and youngsters should daily do at least 60 minutes of moderate-to-vigorous intensity physical activity,<sup>3</sup> that is, at a pace increasing the breathing rate and making a person feel warmer. Looking at the physical activity of Estonian students on school days, we see that only 24% of 7–13-year-olds reach the recommended level (Figure 1)<sup>4,5</sup>. On the other hand, around a fifth of the students do not get the recommended level of physical activity on any school days and another fifth reaches the minimum only on one school day. Thus, the answer to our question of whether children get enough physical exercise is that **three-quarters of students do not get enough physical activity.****

1 Strong WB, Malina RM, Blimke CJR, Daniels SR, Dishman RK, Gutin B. Evidence-based physical activity for school-age youth. *Journal of Pediatrics*. 2005;146:732–7.

2 Tremblay MS, LeBlanc AG, Kho ME, Saunders TJ, Larouche R, Colley RC, et al. Systematic review of sedentary behaviour and health indicators in school-aged children and youth. *International Journal of Behavioral Nutrition and Physical Activity*. 2011;8:98.

3 WHO. Global recommendations on physical activity for health. Geneva: World Health Organisation; 2010.

4 Mooses K. Physical activity and sedentary time of 7–13-year-old Estonian students in different school day segments and compliance with physical activity recommendations. Tartu: University of Tartu Press, 2017

5 Mooses K, Kalma, M, Pihu M, Riso EM, Hannus A, Kull M. Eesti õpilaste liikumisaktiivsus koolipäeva jooksul. *Eesti Arst*, 2016; 95, 716–22.



A good learning space offers different possibilities to move. Balancing and swinging are a healthy training for all body muscles. Physical activity breaks help to reset attention. Frederiksbjerg School, Aarhus, Denmark. Architecture Henning Larsen / Photograph: Virklund Sport



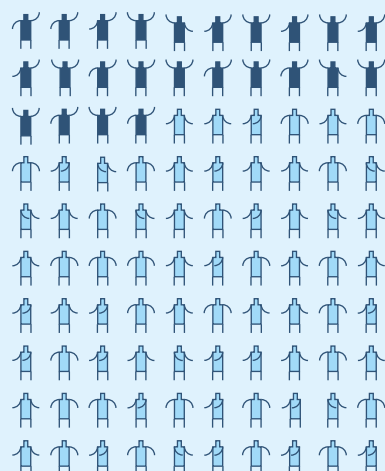


Figure 1. The proportion of Estonian 7-13-year-old students meeting the physical activity recommendation level on school days. 23,7% meet the recommendations, 76,3% do not meet the recommendations. (Mooses 2017).

One of the reasons for poor physical activity could be the social and environmental changes supporting the emergence of the “sedentary era”. To counter-balance, we need to take more conscious action to design environments that would stimulate physical activity in our daily life. Special attention must be paid to children and youngsters whose habits are still in development.

As children spend most of their days at school and this allows us to include all children,<sup>6</sup> many countries have implemented school-based interventions. In addition, physical activity during a school day also supports students’ mental health – it allows them to recuperate from mental pressure, strengthens their relations and contributes to greater enjoyment of school.<sup>7</sup> This is precisely why a physical activity programme for children and youngsters was also introduced in Estonia.

## SCHOOLS IN MOTION – ONE WAY TO SUPPORT CHILDREN’S PHYSICAL ACTIVITY

Move Lab of Tartu University has led the pilot programme “Schools in Motion” since 2016. In the ideal world, every school day should include so much physical activity that all children could reach the recommended level for health and wellbeing, with various extracurricular activities providing additional enjoyment in exercise. The cooperation with schools so far has shown their willingness to come along and test various solutions that could make physical activity a natural part of the day. Schools have experimented with outdoors breaks, games, dancing and ballgames during recesses, providing sports equipment to support activities and reducing sedentary time in classes (see Figure 2).

<sup>6</sup> OECD (2018). Education and Skills 2030: Curriculum analysis progress report for P.E. with preliminary findings. 7th Informal Working Group (IWG) meeting 14-16 May 2018 Paris, France

<sup>7</sup> Haapala EA Finnish schools on the move: student’s physical activity and school-related social factors. LIKES Research Reports on Physical Activity and Health. 2017

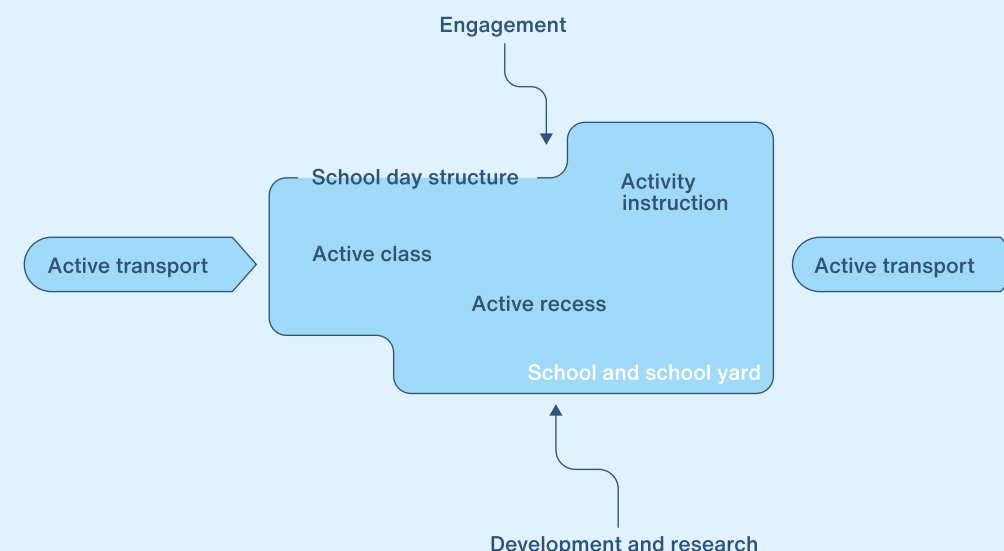


Figure 2. The operating model of the programme “A School Inspiring Physical Activity”

**It is becoming increasingly evident that the learning space needs changes.** Not only classrooms and other indoor spaces, but also school yards and surrounding areas are important challenges calling for solutions.

*A quote from a student: “The corridors could be wider so that you can run on one side and the other side is for those who don’t want to be run into.”*

*A quote from a student: “I had a dream once that the school was very soft. And you could bounce as much as you wanted and I liked it because you could run a lot and it all felt very free. You didn’t have to worry about taking quicker steps to avoid slipping on the tiled floor or anything.”*

As highlighted by the teachers, the learning space is one of the most common factors hindering physical activities<sup>8</sup>.

*A quote from a teacher: “There is little space in the aisles between desks in the classroom. There is no air in the classroom!”*

*A quote from a teacher: “We have little space to move around in the classroom which makes activities uncomfortable, if not impossible.”*

The guidelines “The School Building Inspiring Physical Activity” (“Koolimaja kutsuv liikuma”, in Estonian) can be of assistance when considering the ways how the learning space could support children’s physical activity, learning and well-being.<sup>9</sup>

<sup>8</sup> Liikuma kutsuv kool. Online survey. Tartu Ülikooli liikumislabor, 2016.

<sup>9</sup> [https://www.liikumakutsuvkool.ee/wp-content/uploads/2018/07/koolimaja\\_kutsuv\\_liikuma\\_ekraaniversioon\\_72dpi.pdf](https://www.liikumakutsuvkool.ee/wp-content/uploads/2018/07/koolimaja_kutsuv_liikuma_ekraaniversioon_72dpi.pdf)





Active recesses play a key role in physical activity. A school environment providing the means for physical activity allows children to put their skills to the test, enjoy exercising and being together. Haapsalu Basic School, Estonia. Architecture 3+1 architects / Photograph: Tõnu Tunnel



# OUTDOOR RECESSES AS AN OPPORTUNITY AND CHALLENGE

The first three years of collaboration with pilot schools of Schools in Motion showed that allowing children to go outside during recesses played an important role in supporting their physical activity. Then again, outdoor recesses are not common in Estonian schools in all seasons.

*A quote from a student: "They don't really want to let us go out of the school building. Even when the weather is nice. I think it's a big problem."*

**When asked about what could be changed at school to provide more physical activities, students mostly brought out their wish to spend recesses outside.**

*A quote from a student: "The school yard could be nicer and more natural, there could be more things for different activities like swings, table tennis, resting areas and so on."*

They also mention that recesses could be longer so that they could have enough time to play and go outside in case of outdoor recesses.

*A quote from a student: "If recesses were longer, we could go outside every time."*

*A quote from a student: "Everybody would be happy if recesses were only five minutes longer."*

*A quote from a student: "Teachers shouldn't be so angry when we are late for the class, there should be at least one 30-60-minute outdoor recess for students to run and play and so on."*

Already allowing students to go outside doubles the proportion of physically active children and considerably reduces the number of children sitting during recesses. Staying outdoors has several positive effects on children's health. For instance, it has been found that spending time in nature improves children's memory, attention, self-discipline and behaviour and reduces stress.<sup>10</sup> The positive impact of outdoor and active recesses on students' behaviour was also confirmed by 80% of the subject and class teachers of the participating schools. The benefits of outdoor recesses are further supported by the fact that most students like them (see Figure 3).

*A quote from a student: "I kind of agree that you can't run in the school building, but there should be a place outside where we could run."*

<sup>10</sup> McCormick R. Does access to green space impact the mental well-being of children: a systematic review. Journal of Pediatric Nursing 2017; 37:3-7.



Figure 3. Attitude to outdoor recesses among students in Grades 4-9 in schools participating in the project. 97% like it, 3% do not like it.

On the other hand, outdoor recesses raise a number of questions: What are students doing outside? Are there suitable activities for different age groups? Could there also be common activities? Which elements in the school yard promote both spontaneous and organised activities? What kind of a school yard would inspire physical activity all year round? How to do it so that mud and sand would remain outside rather than find their way with students to the classroom? How could children get outside easily without going through a narrow cloakroom? And so on.

*A quote from a student: "We had a big tree outside the school where all classes could play Forty Forty, it was very popular but then it was cut down this spring. Everyone is really sad and we don't know how we'll manage in the future."*

In Scandinavian countries with a very similar climate to ours, outdoor recesses are the norm all year round. Then again, organising them well does not depend solely on the attitude of the school community, it also requires activity space solutions appropriate for the conditions.





A school yard inspiring physical activity provides discoveries and various possibilities for activities. Skorping School, Denmark. Landscape architecture VEGA landskab / Photograph: Leif Tuxen



## WHAT KIND OF A SCHOOL YARD INSPIRES PHYSICAL ACTIVITY?

School communities often complain that there is nothing but lawn or even a parking lot in the school yard or at best a stadium for so-called classic sports. These solutions, however, inspire only a handful of students. So we can ask if it has to be like this? Could the school yard design create new options and give choices that provide physically engaging activities while also being safe and simple? Could the school yard design inspire a variety of activities for different age groups while also allowing others to enjoy strolling and talking to one another or sitting alone in contemplation?

An outdoor area designed to meet the needs helps to develop students' self-management skills – it is possible and fun to be physically active also without the guidance of teachers, other students or recreation leader. A school yard inspiring physical activity should support:

- enjoyment of physical activity as an alternative to mental activity,
- the development of diverse movement competences,
- social relations,
- outdoor learning,
- creativity.

While the standard approach is that the development of movement competency should be covered in physical education classes, the Schools in Motion provide the means for it also during breaks and after the school day.

In the Estonian education system, the curriculum of physical education is currently going through changes. One of the aims of the process is to support physical literacy and various competences so that students could use and develop them during recesses, extracurricular activities and games. Such an approach allows children to create links between the ideas taught in class and the possibilities to use them outside school. Also international experience in increasing children's physical activity has shown that activity studies should focus on the appropriateness of the activities in class with particular attention paid to the development of physical literacy as well as favourable attitudes. Such an approach requires that the entire outdoor area around the school is comprehensively considered and designed. It is important to note that the result here should not be a set of prescribed activities but environmental solutions that allow students to choose between various activities. This means multifunctional solutions directed to creativity.<sup>11</sup>

<sup>11</sup> Whitehead, M. The concept of physical literacy. European Journal of Physical Education 2001; 6: 127–138



**A versatile environment brings outdoors both boys and girls, big and small, even teachers.**  
Skorping School, Denmark. Landscape architecture VEGA landskab / Photograph: Henriette Clausen



A school yard inspiring physical activity, thus, provides varied possibilities for the development of movement competency that, in turn, forms the basis for enjoyment in exercise, physical literacy and the development of daily exercise habits.

What are the versatile movement competences that should be supported by the school environment? Movement competency is divided into four large groups:<sup>12</sup>

**1. Locomotor skills – running, skipping, climbing, crawling, walking:**

- possibilities to run and hide (behind trees or bushes), change direction (zig-zagging, tag, obstacles in the landscape), speeding up (chasing games) or stopping (up the hill). A well-known game that children like to play in the school yard is Forty Forty. Such games allow a large number of children to move simultaneously while also promoting the development of social skills;
- possibilities to leap, jump over something or down from somewhere: a hopscotch court, rocks and other natural obstacles, old tires, obstacle courses, similarly Chinese jump rope and finding solutions to using the obstacles;
- possibilities to climb: in trees, on rocks and climbing walls, similarly to swing while climbing (for instance, on monkey bars) or use climbing structures or ropes;
- possibilities to crawl: through or under tires or nets, shrubs, tunnels through a mound.

**2. Object locomotor skills – moving with an object (scooter, bicycle, skateboard, skis, skates, snowboard, roller-skates):**

- a low ramp;
- possibilities to design a BMX or skatepark for dexterity exercises (such as braking, passing and crossing obstacles, controlling mobility in a restricted area);
- a mound or a slope for coming downhill and braking with skis and snowboard;
- a possibility for an ice rink.

<sup>12</sup> Dudley DA. A conceptual model of observed physical literacy. The Physical Educator. 2015

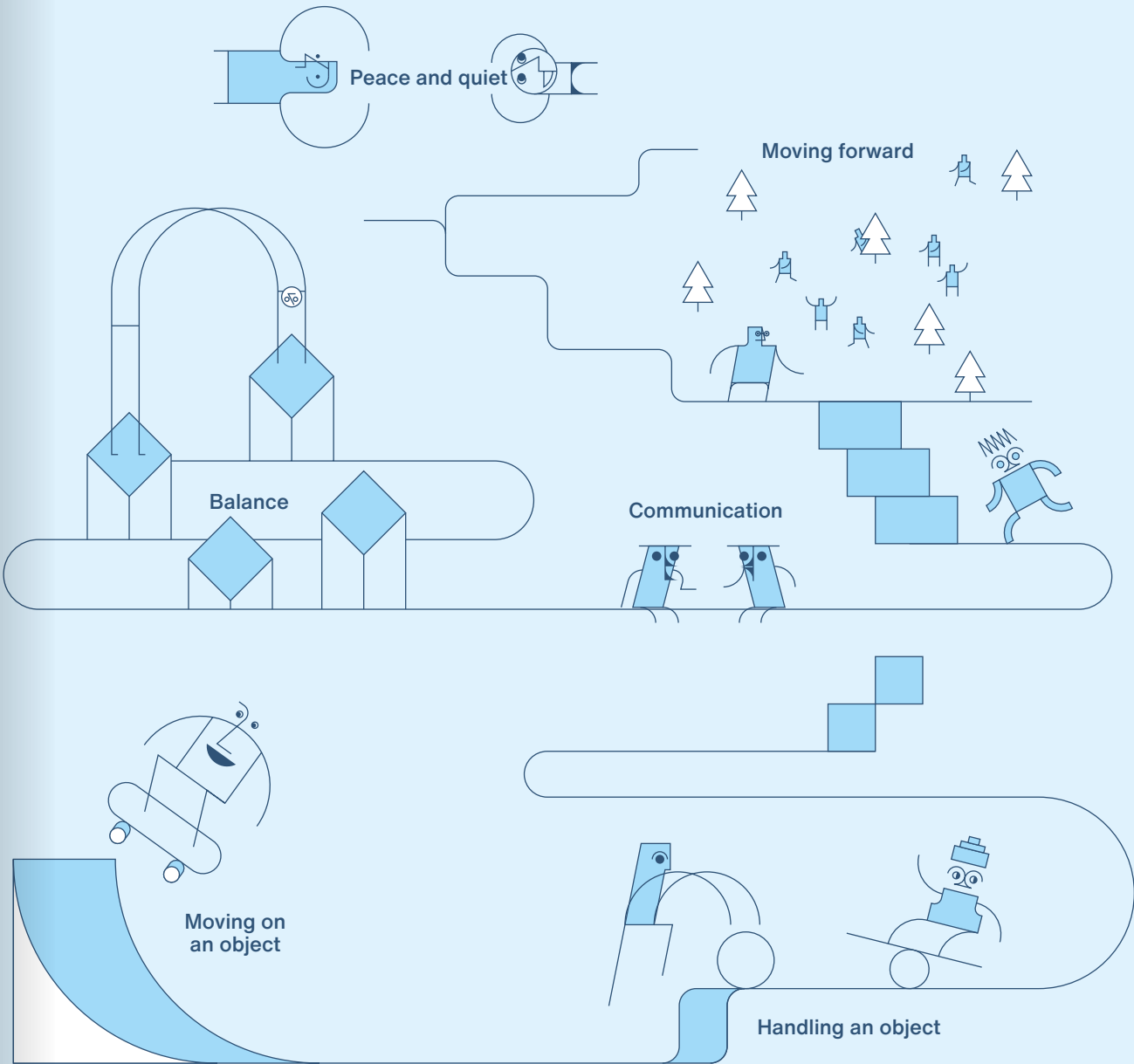


Figure 4. A school yard inspiring physical activity



### 3. Manipulative skills – bouncing, throwing, catching, rolling, kicking a ball or hitting with a racket:

- courts marked on asphalt, lawn or artificial surfaces (a good example is Ultimate Frisbee – a social game played with a frisbee within the outlines marked on a lawn that can be played in physical activity classes and during recesses);
- a wall for training throwing accuracy or bouncing a ball;
- a hard surface for bouncing a ball;
- numerous goals, desks and baskets allowing to play various games such as basketball, volleyball, football, racket games such as tennis, field hockey, disc golf, table tennis.

### 4. Stability and body control skills – possibilities to step over something or jump down from somewhere, to stand on or walk on something while keeping one's balance:

- a parkour wall;
- steps made of stumps or a balance beam;
- a mound or a slope;
- a slackline or horizontal ropes between trees, unstable planes (ropes), swings.

The solutions appropriate for the particular school must be decided by the school. However, the opinion of PE teachers as well as students should be considered. Asking their opinion allows to establish educationally relevant connections: all parties feel that they have been included in shaping the school environment, they have a positive attitude to physical activity and an understanding that it is a natural part of their daily life. A school yard inspiring physical activity allows you to introduce exciting and developmental activities in recesses, lessons as well as games before and after school. And a well-considered school yard also provides the school with its unique character and image.

Have fun with physical activities every schoolday!

In 2016-2019, the development of Schools in Motion was supported by Ministry of Education and Research, Ministry of Culture, Ministry of Social Affairs and the Council of the Gambling Tax, from 2020-2023, it is funded by EEA grants under the program "Local Development and Poverty Reduction", co-financed by the Ministry of Social Affairs and the University of Tartu.



A good activity space provides various possibilities for finding a physical activity suitable for individual needs. Watching the activities is equally important – cheering for others brings the community together, helps to make friends and develop social skills, it allows some people to perform while others pluck up the courage. Skorpung School, Denmark. Landscape architecture VEGA landskab / Photograph: VEGA

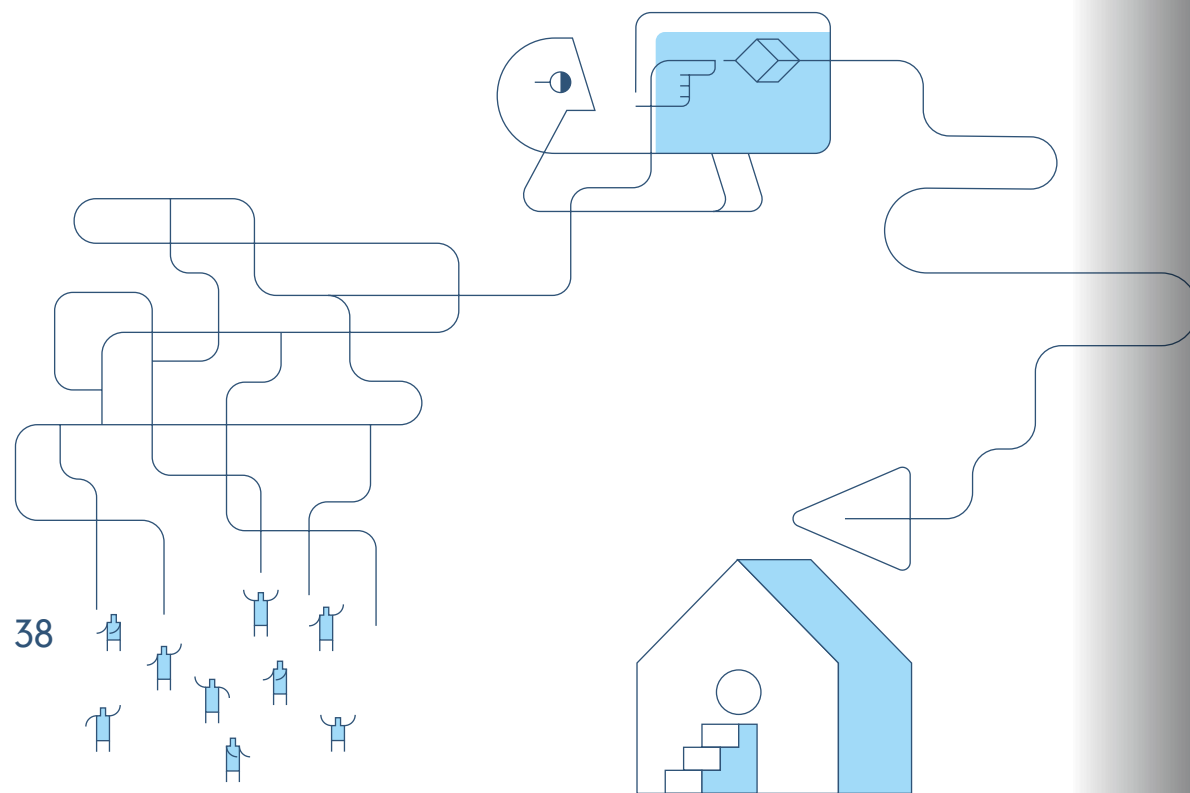
# STEP-BY-STEP TOWARDS A GOOD LEARNING SPACE

## STAGES OF CHANGE

Changing the school environment – whether constructing a completely new building, renovating the existing one or introducing small changes in space – is generally divided into three stages:

**brief → project → construction**

It may seem that the real work starts with the design plan, however, actually all three stages are equally important. **A good school starts from a good brief.**

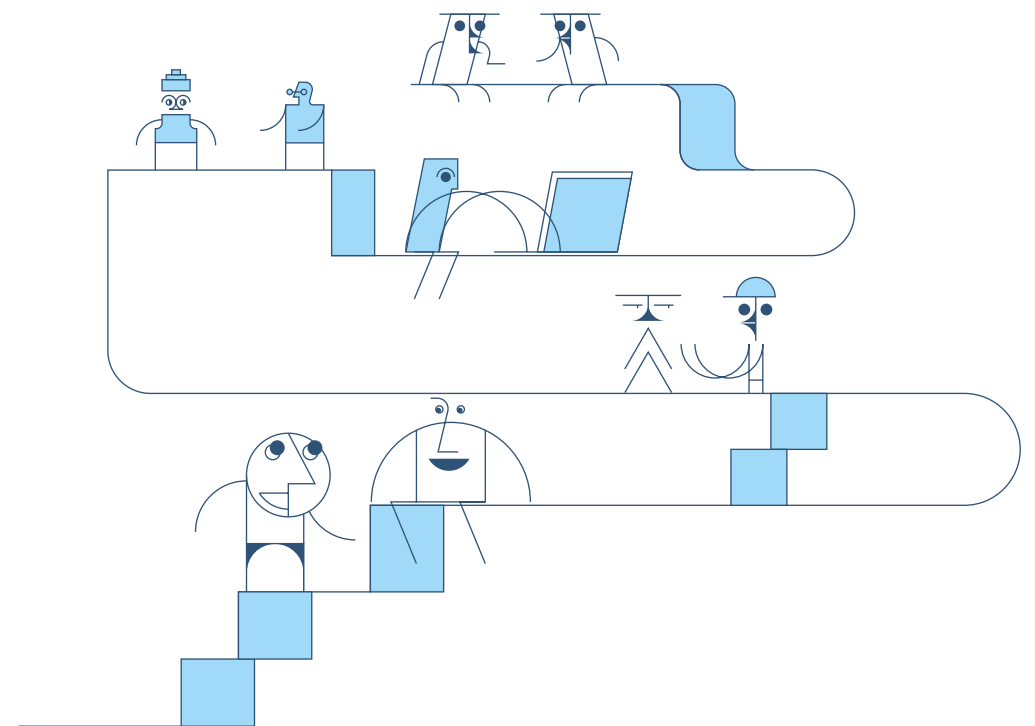


## THE BRIEF

The brief is an agreement describing the needs and aims of the planned undertaking. In the brief, you consider and establish your position with regard to numerous aspects, in other words, the learning space is analysed and conceptualised as a physical, mental and social environment.

The Estonian national curriculum for basic schools says the following:

**“The learning environment is understood to mean the combination of mental, social and physical environment surrounding pupils and in which students develop and learn. The learning environment shall support the development of students into independent and active learners, promote the core values of basic education and the spirit of school community, and preserve and develop local and school community traditions.”<sup>1</sup>**



**The learning space is a comprehensive whole – a physical, mental and social space**

<sup>1</sup> National curriculum for basic schools, Chapter 2, Division 3: Concept of Learning and the Learning Environment, § 6. Learning Environment, Section 1. The national curriculum for secondary schools defines the learning environment similarly: “The learning environment is understood to mean the combination of the mental, social and physical environment surrounding students, in which students develop and learn.” (National curriculum for secondary schools, Chapter 2, Division 3: Concept of Learning and the Learning Environment, §7 Learning Environment, Section 1)



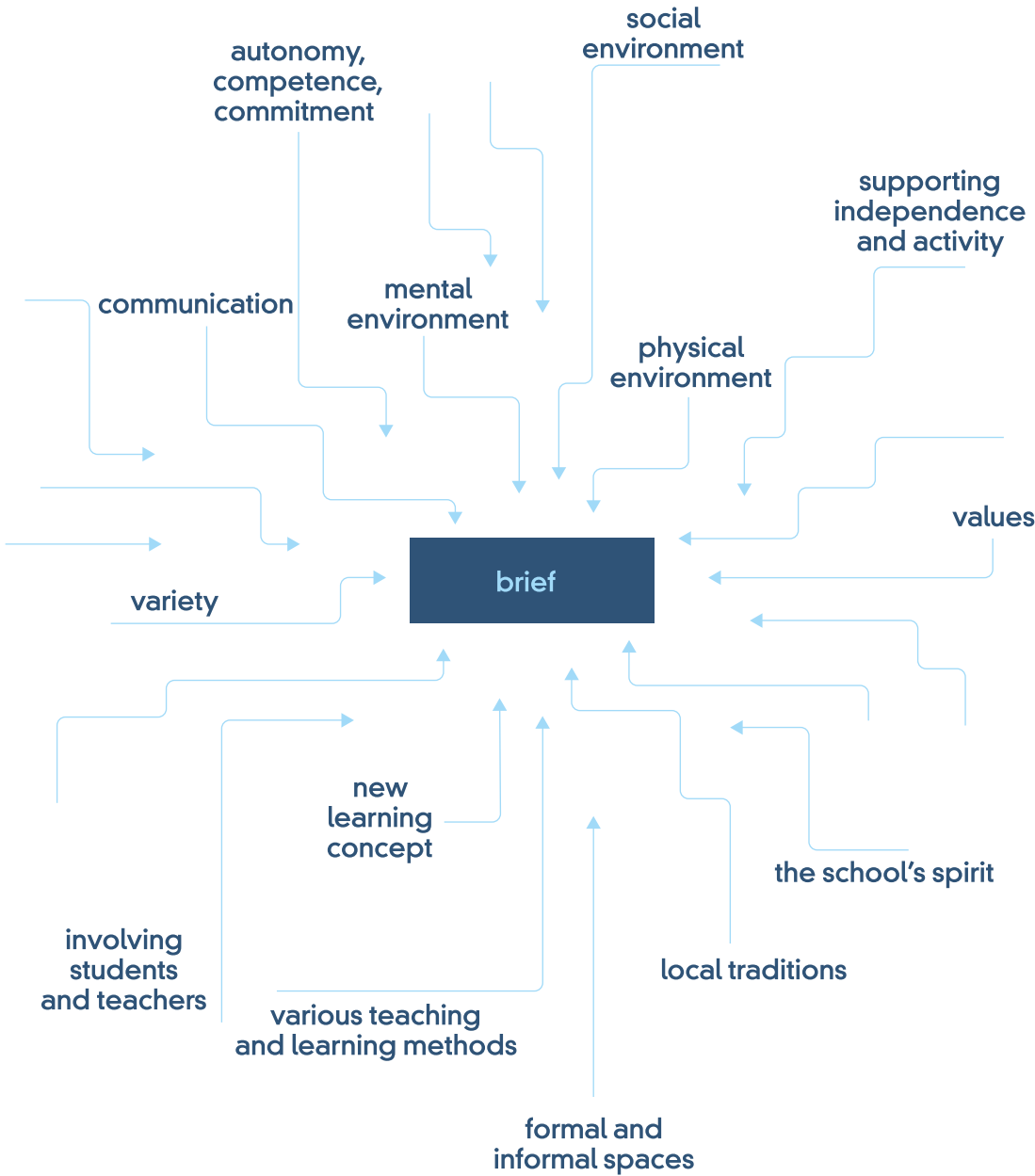
As the learning environment is defined as a whole, the physical space must be designed cohesive with other aspects of the learning environment. Designing a school building requires that both the client and the architects have a comprehensive vision.

**Some questions that are agreed upon in the brief**

- What is the vision of the learner? How does he acquire knowledge and experience and what kind of a person will he become?
- What is the vision of the teacher? What means does he use in teaching, how does he cooperate with colleagues, how does he set an example?
- What is the school identity? What kind of values does the school represent? What connects the members of the school?
- What are the peculiarities of the location of the school and what is the school's role in it?
- How is the school related to the local community? Who else considers or could consider the school important?
- ...

The brief does not have a prescribed form or a definitive list of questions that must be answered. A good brief is a substantive document. All stakeholders are involved in compiling it, a lot of time is dedicated to discussing possible differences of opinion and finding common ground or consensus, with various opinions eventually expressed in the form of a comprehensive and cohesive vision of their school's future.

**Tip!** The brief does not necessarily need to describe the spatial solutions. Once the problem and aim are clearly explained, the solution could be left entirely to the architect. For instance, there could be few opportunities to move around in the existing school building and the aim is to get students to spend recesses in physical activities. The architect will study the possibilities of the school environment as a whole and propose solutions that nobody could perhaps even ask in the brief. Sometimes it may be possible to split the large common cloakroom into several smaller ones to bring outdoor clothes closer to students and thus make going out easier and faster. In some cases, it turns out that there is already a large area suitable for exercise and the solution is particularly simple and cheap – they only need to leave the gym door open for recesses. You could involve an architect also in the brief compilation stage to advise you on the analysis of the use of space and asking the relevant questions.



A good brief is thorough and multi-layered

# TIMESCALE

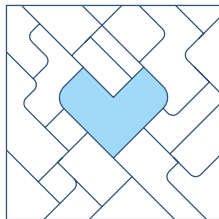
The key to a successful endeavour lies in a professional time schedule. There are two challenges in planning your time: starting early and fitting the work of various stakeholders into the common schedule. Lack of time will be inevitably reflected in deficiencies in the project. Saving enough time allows all stakeholders to do their work thoroughly and commit to the cooperation in order to find the best solution.

**In Estonia, constructing a school building from scratch takes at least 3–4 years,** with a valid plan 1–2 years. We hereby present the ideal timescale with sufficient time saved for each step. The stages are in keeping with the Estonian legislation and good planning and building practises.

The timescale for the construction of a school building includes the following steps:

## DRAWING UP THE BRIEF

The brief sets out what kind of a school it will be. See also the section about the brief. Architects may be involved in drawing it up.

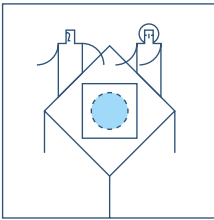


### SELECTING THE LOCATION

The school is the heart of the community. It brings together very different members of the community on daily basis and makes the local life bustle. It must be within convenient distance from homes and encourage people to move around on foot, by bike or public transport. The school should be in the middle of the town or district. In towns with shrinking population, it can be a valuable means to strengthen the centre.

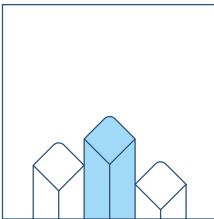
### COMPLEMENTING THE BRIEF REGARDING THE LOCATION

The brief may be considered complete once also the ideas, wishes and needs stemming from the location have been added.



## DETAIL PLAN 1–3 YEARS

The brief is needed already for the preparation of the detail plan. The latter sets out the most general spatial ideas, for instance, where and to what extent you can build and how the access is ensured. The definition of the building area, in turn, often determines the location of the school yard. Here we already see the first questions related to the school vision: will students spend the outdoor breaks in a large joint area or will there be several smaller areas, in other words, will the school yard be on one side of the building or around it? Will there be only one building or a campus including several smaller buildings? How can we ensure a car-free school area while still retaining a vehicle access for those who need it? Solutions to such spatial issues can be proposed best by architects. In case there is no detail plan yet or it is outdated and no longer meets the needs and expectations, it is a good idea to organise an architecture competition before drawing up a new detail plan. The fewer the restrictions, the wider the range of possibilities and also greater the probability to find a really good idea fitting the environment and the context. In case it is difficult to assess the compliance of the detail plan with your brief, ask an expert.

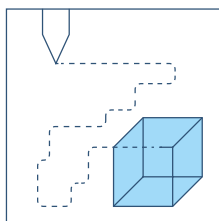


### ARCHITECTURE COMPETITION 4–6 MONTHS (including drawing up the competition brief)

By the time you organise the architecture competition, you need to have a good and thorough brief ready. It is recommended to include an architect in drawing up both the general brief as well as the competition brief and also to consult and agree on the competition terms and conditions with the Association or Chamber of Architects who have the competence and experience in organising competitions.

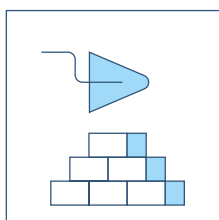
Why should you prefer an architecture competition to a regular procurement? In case of a competition, various architects will propose their vision of the required school environment thus providing you with a wider selection of spatial solutions to choose from. It mitigates the client's risks: it allows them to get to know the future cooperation partner's way of thinking through the proposed vision and the given ideas will be provided expert feedback before signing any binding contracts.





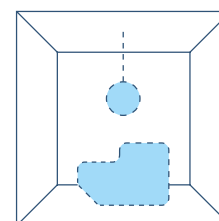
## THE DESIGN PROCESS 10–12 MONTHS + PROCUREMENT PROCEEDINGS + APPROVALS

The time needed for the design process largely depends on the particular project, primarily on the size and complexity of the building (including, for instance, the specific requirements related to historical environments). According to the Estonian Building Act, the process is divided into stages (preliminary, master and working project). Pursuant to the Copyright Act, the winner of the architecture competition has the right to complete all the stages of the architectural design process. The same law also stipulates that in case of a reconstruction project, the initial author(s) of the building must be contacted. In the course of the design process, the school headmaster makes sure that all the stages are based on the agreements made in the brief. It is highly important that all design work participants (architect, interior architect, landscape architect, HVAC engineers, acoustician etc) are regularly involved in all stages to ensure that the result is a thoroughly considered whole with minimum changes needed afterwards. A project that is merely transferred from one design specialist to another with all of them dealing only with their own section without consulting other parties will most probably lose its fundamental ideas and the time together around the table will be spent on solving the problems caused by the initial seclusion. Good cooperation is ensured by a strong and professional project manager and regular joint deliberations.



## CONSTRUCTION 12–15 MONTHS + PROCUREMENT PROCEEDINGS

Also the time required for construction largely depends on the size and complexity of the building. Construction and the respective supervision are as important as the other stages. The beginning of the construction does not mean the end of the design work – there are bound to be changes and regular meetings to solve current issues. If you have saved time for that, you will minimise the number of errors caused by inattention and the need for making further changes.



## FURNISHING 4–5 MONTHS + PROCUREMENT PROCEEDINGS

Furnishing marks the last stage of the project and once again, you need to go back to the initial brief and project to remind yourselves on how you plan to use the spaces and what the respective requirements for the furniture and finishing were set. It is time to go back to the interior design project and check what requirements were set for the products or custom-made furnishing to ensure their functionality as well as quality (e.g., should desks and chairs be stackable, what are the technical requirements for lighting fixtures, material specifications etc). IT-specialists can specify the technical requirements and check that all solutions can be used conveniently together, if necessary.

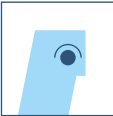
## BUILDING IN STAGES

It is more difficult but absolutely essential to draw up a comprehensive and detailed time schedule for a school innovation implemented in stages. It often turns out that the scarcity of some resource (time, money) does not allow you to make all the changes at once. It is then advisable to realise the plan in stages. We suggest you start the division from the last part of the trinity of brief-design-construction, that is, the building stage. This way the idea of a well-considered functioning and comprehensive school environment is retained and you can avoid a situation where the areas completed at different times no longer function well together or even create new problems. Planning the realisation of a comprehensive idea in stages also allows you to consider temporary scenarios – what will happen if some parts of the project are built but others not. Alternatively, also the design work stage could be divided into stages. However, the stage of preparing the brief should remain intact. The school should always have a comprehensive vision of the development of the learning environment, even if the change is undertaken only in one part of it or if there is no exact knowledge when the change can be done. This vision is regularly complemented and improved.

# COOPERATION

A good brief relies on constructive cooperation. Also this begins with planning: who should we include and how? We'll consider the questions one by one.

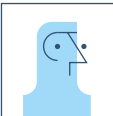
## WHOM TO INVOLVE?



**Head of the school** – stands for the vision of the school as a learning environment, recognises the need for involving other members of the board or the school.



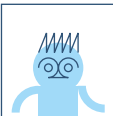
**Architect** – can link the needs and wishes to spatial solutions, recognises the need to involve other experts (acoustician, light designer, product designer etc). In addition to the architect who designs the school building and the surroundings as a whole, also an **interior architect** could be involved to design the furniture, lighting and finishing materials as well as a **landscape architect** to deal with the outdoor areas, greenery and outdoor learning possibilities.



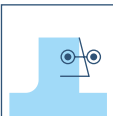
**Local government/ client representative** – knows the needs and possibilities of the local government (e.g., documentation and legislation, timescale, budget). In case the client representative is primarily a contact person between the school and the decision-makers, it is advisable to find a way to regularly involve also a person or persons with a vision from the decision-makers circle.



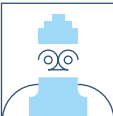
**Teachers** – know the daily life at school and can mediate and analyse student experience.



**Students** – represent the largest user community. Although affected the most by the learning environment, they are often the least involved interest group and need help to participate in the process.



**Psychologist** – can analyse and conceptualise the students' needs and wishes, similarly explain the essence of learning and the factors affecting it.



**Board of trustees (parents)** – can analyse and conceptualise the students' needs and wishes, perceives the school's image and role in the community.

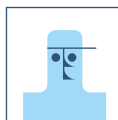


Cooperation is based on joint discussions. Instead of lining people up next to one another, a good learning environment naturally places them face-to-face. Frederiksbjerg School, Aarhus, Denmark. Architecture Henning Larsen / Photograph: Peter Nørby





**Recreation leader** – sees the school environment from the perspective of extracurricular activities.



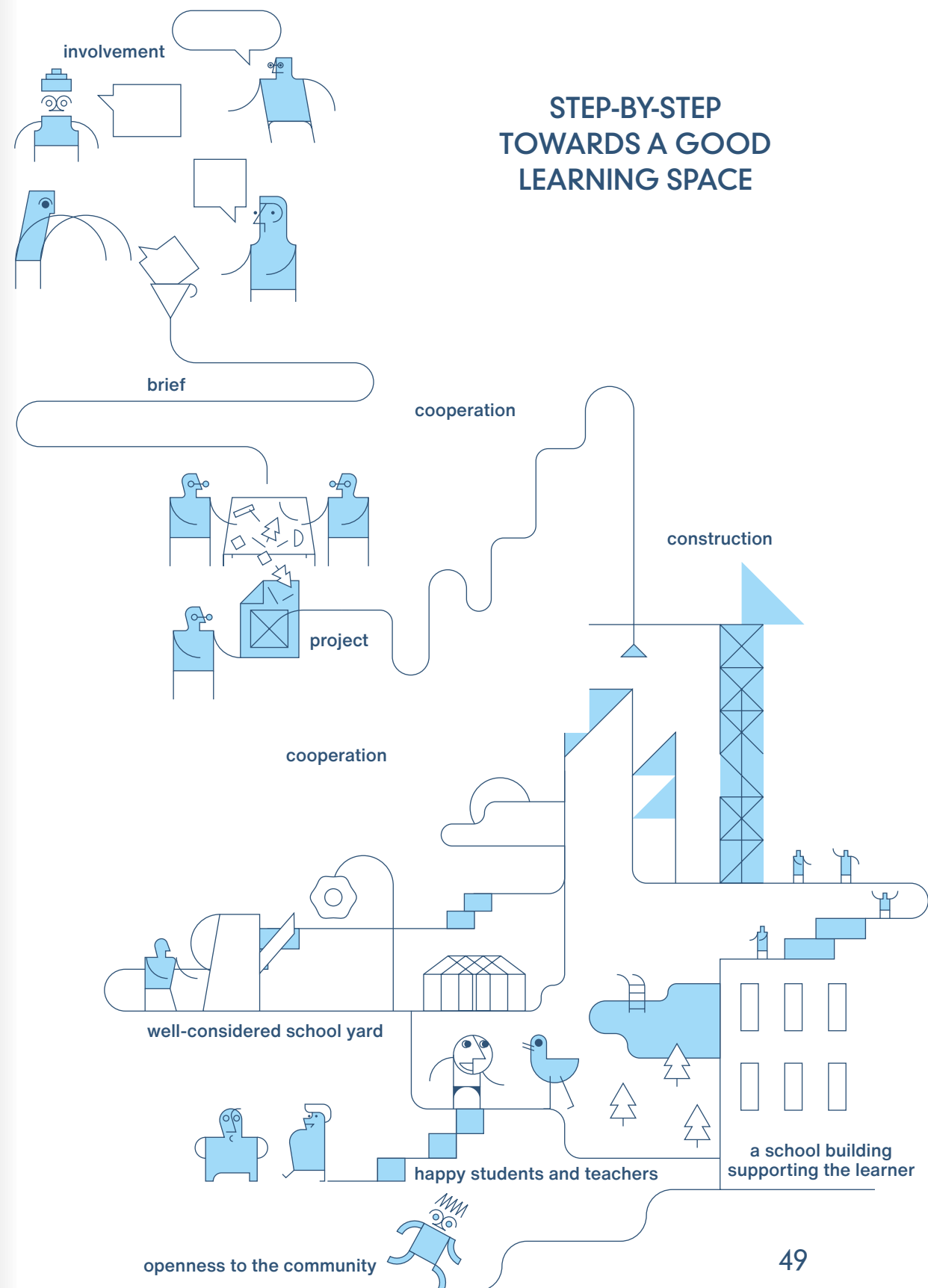
**Collaboration leader** – a person with experience in organising constructive cooperation and involvement who can plan the possible contribution by various stakeholders and find a way to overcome disagreements.

## HOW TO INVOLVE PEOPLE?

The more participants there are in the process, the greater the need to ensure that their work is as effective and efficient as possible. Participants are motivated to contribute when they clearly perceive that their suggestions matter. Create various possibilities for face-to-face meetings and open discussions – filling in questionnaires or responding to emails does not connect the participant to the project. The results will benefit from researching and implementing teamwork methods and cooperation means (brainstorming, workshops with creative tasks, moderated discussions, walking meetings, problem gathering etc). The participants can work in separate teams as long as the analysis and summary of teamwork are ensured and the project leaders provided with structured information.

## NOTES ON COOPERATION

1. Remember the value of direct communication. The participants' contribution is more constructive if they see that their ideas reach the decision-makers and they can have a say.
2. Keep the core of the project in balance. Make sure that in addition to qualitative balance there is also balance in communication to avoid some interests or louder voices taking over.
3. Make sure that the participants care. Look at the first point and consider if it is important to involve a key person or persons with a vision from the local government circle.
4. Refrain from prejudices. In the rapidly changing world, rigid attitudes can seriously slow down development.
5. Widen your horizons. Travelling abroad and visiting other schools provide inspiration and form the premise for the best results.
6. Dare to be the first. The courage to try out innovative solutions could advance the entire world.
7. Don't be afraid of processes that seem to have no predictable results.



# A SAMPLE OF PREPARING A BRIEF

The brief does not have a prescribed form or a definitive list of questions that must be answered. Below are some possible questions that the members of the school and community should discuss together to form the basis for a substantive vision of your school.

Explore your educational space and dreams, for instance, on the scale from large to small or from general to specific.

## 1. ANALYSIS OF THE LOCATION (that is, the level of local district or neighbourhood)

- What is the character or identity of the neighbourhood? How would you characterise it? What are the local values?
- How is the school related to the neighbourhood? Is it in the centre or on the outskirts? Is it well connected with the neighbourhood or separated? Do people pass it on their daily routes or do they only come here for a reason? Is the school also a local landmark?
- How do people come to school? Has it been studied and do you have statistics on it? Try to avoid prejudice and opinions. Why do people use the particular means of transport? Are you satisfied with their choice?
- What is the quality of the immediate surroundings of the school? How are the school building and yard positioned? Where are the access routes and what are they like? What are the values of the area? What are the concerns? Do you know the cause of these concerns?
- What does the school offer to those locals who are not related to the school?
- What can the locals who are not related to the school offer?

## 2. ANALYSIS OF THE BUILDING (that is, the level of the community)

- What is the character or identity of our community? What are our values?
- What are the unique qualities or identity of the school?  
What are the school traditions? Who else is welcomed there – parents, the community? Does the school allow its premises to be used to the full? Which spaces are overused, which ones underused? Why?
- How does the school building relate to its users?  
Does it appear anonymous or does it evoke a sense of belonging, security and well-being in its users? Do people spend time there also after classes? How? Why?
- How would you characterise the mutual relation of the school areas?  
Do members of the school know what is going on in the building?  
Do people meet one another by chance during the day and where?  
Are there any good places for taking a break?
- How would you rate the spatial diversity? Are there different types of spaces in the building (for active games, resting, playing, contemplation, discussion, learning etc)? Where do various activities come together?
- What kind of space inspires people to learn/work?  
You can give examples outside the school and think of the reasons why they are inspiring.
- How many various activities take place in the common area (outside classrooms)?
- How could the school be used as a learning tool?



### 3. ANALYSIS OF SPACE (that is, the personal level)

- How do I learn? Can I rest or relax?
- What kind of variety do I expect from an environment where I spend a considerable part of my day?
- How could we provide a change for sitting?  
What would inspire people to make healthier choices?
- How do my wishes and needs differ from those of others?  
Am I more introverted or extroverted? Am I taller or shorter than average?
- How does my age affect my preferences?  
What is important to me and my peers?

### 4. RECOMMENDATIONS

In spring 2018, a working group of architects conducted a short study of Estonian schools that had undergone spatial changes. Here are some conclusions and recommendations based on the feedback by headmasters, teachers and students:

- There can never be too much flexibility
- An articulated and versatile common area has a balancing effect
- The cross-usage of spaces is feasible and also contributes to flexibility
- The heart of the school gives the school its distinctive image and is also an important meeting place
- The school as a community centre brings people together
- The area for primary school should be more playful, with a separate entrance, if possible
- The cloakroom should be near the entrance, not on the basement floor
- Furniture should be light, moveable and diverse
- The outdoor area is an important part of the school environment that could be in more frequent and versatile use
- Special attention should be paid to possibilities for exercising indoors



The school building is like a small town, multi-layered and full of life, bursting with possibilities for studying, communicating, sharing with others or staying alone. Frederiksbjerg School, Aarhus, Denmark. Architecture Henning Larsen / Photograph: Hufton & Crow



# THE LOCATION OF THE SCHOOL

## Analysis of the location

When planning a new school, it is advised to consider various locations and find the most feasible site not only for learning but also for the community centre. **The most important aspect to consider is that the school must be close to students** so that as many children as possible could come to school on foot or by bike thus enhancing their independence and exercise habits. Proximity to residential areas allows the local people to organise community events in the school premises and this way make the school a natural part of their everyday life. A school building does not always require a large plot, an interesting multi-layered school environment can also be designed into a dense urban environment intertwining the public and the private, indoor and outdoor spaces.



**A well-considered learning space provides diverse indoor and outdoor spaces for studying and playing also in a dense urban environment.** Photo: Marlborough Elementary School, London, England. Architecture Dixon Jones, landscape architecture Macgregor Smith / Photograph: Paul Riddle



Common ground with the community

The school building and yard play an important role not only in the life of the school but also for the entire community, providing facilities for outside-school-hours activities. Both indoor and outdoor spaces can be in cross usage by various stakeholders and provide versatile functions by day, week or year. An open school yard contributes to a safe and secure environment as well as to upholding local values. The area in front of the school is necessary for the members of the school and the community as a place for meeting and interaction. Vehicle access and parking should be solved in a way as to avoid intersection with the main paths. The square in front of the school functions as a business card and thus forms an important part in the common identity of the school and the community.



Israel's Square in Copenhagen functions as both an urban square and N. Zahle's School yard. Architecture COBE + Sweco / Photograph: Rasmus Hjortshøj - COAST



The entrance area is easy to find, inviting and open, while the area in front of the school encourages the community to become involved (e.g., to use the library and go to the café) and also functions as the heart of the local life in any weather. Saunalahti School, Espoo, Finland. Architecture Verstas / Photographs: Tuomas Uusheimo (above), Andreas Meichsner (below).





Several functions in one. The building's position to the street space leaves extra room for people. It might be necessary to limit the school yard area in urban centres, however, it should not exclude the design of an inviting space. MFC includes two elementary schools, childcare, a secondary school, a community centre for youngsters and seniors as well as a sports hall. The Multifunctional Centre Leeuwarden, Holland. Rudy Uytenhaak + Partners Architecten / Photograph: Pieter Kers



## Getting to school

A good route to school allows children to exercise and considers various forms of transport for everyone to find their best option – either coming on foot, by bike or scooter, by bus or skateboard etc. It must be safe and support children's independence. Here it is also important to look at the big picture – the school building in relation to the non-motorised traffic and public transportation network – and cooperate closely with the local government. It is important to implement the pedestrian's right of way in the school premises and, if possible, keep motorised traffic away from the main gathering area or use various measures to keep the speed low and road users attentive. By implementing universal design principles, the school can be accessible to all (people with reduced mobility or visual impairments, old people, parents pushing a pram, etc). We should not ignore the connections with the nearby streets either – whether we have ensured safe and logical crossings as well as the fastest and most comfortable access to school from all directions, or whether we need to intervene in order to prevent the street space from spreading out and thus mentally elongating the way. Paths and arrivals are supported by open views and various landmarks, the variety of the route and the alternation of spaces – all the given measures shorten the psycho-geographical length of the journey. Upon arrival, it is important to have a safe place where to leave the means of transport for the school day which must be similarly accessible, logically placed and convenient.



**A safe way to school supports children's independence. Although it should primarily be safe, taking the route could also provide interesting experiences. An exciting path will motivate children to move around independently.** Dafne Schippers Bicycle Bridge over the roof of Montessori School, Holland. Next Architects and Rudy Uytenhaak + Partners Architecten / Photograph: Marcel Ijzerman





**A convenient bicycle shelter helps to give preference to non-motorised traffic. Bikes can be locked safely and sheltered from rain.** Bike shelter of Raatuse School, Tartu, Estonia. Reconstruction project Arhitektuuriklubi / Photograph: Aljona Galazan



**Universal design principles help to make the school yard accessible to all. For instance, curb cuts or ramps allow easy access with a wheelchair, bike, pram etc. Safety and direction signs help the visually impaired people to navigate in the space.** The surroundings of Rommen School and Cultural Centre, Norway. Landscape architecture Østengen & Bergo / Photograph: Terje Ong



**The arrival at school is fun with the school yard forming a part of the public park.** Mart Reinik School, Tartu, Estonia. Landscape architecture Anna-Liisa Unt / Photograph: Maris Tomba







The common spaces in the school provide various places for communication. Haapsalu Basic School, Estonia. Architecture 3+1 architects / Photograph: Tõnu Tunnel

Left: The heart of the school is a meeting place where all the other spaces flow into and out of. The lobby-atrium of Järveküla School, Estonia. Architecture Sweco / Photograph: Reio Avaste

# SCHOOL AS A SOCIAL SPACE

## A meeting place

A good learning space allows for both formal and informal communication, creates a sense of togetherness and provides social variation. **A good school is like a small town** – there are places for being alone and together, spaciousness and cosiness, areas for action, contemplation as well as rest. The heart of the school enhances communication and a sense of belonging – it is a meeting place where all the other spaces flow into and out of. Also the great hall, library and gym can be actively used between or after classes for communication, exercise or hobbies and thus linked seamlessly with other common areas. Communicative areas should expand also outdoors and provide various opportunities for activities in any weather.





# SCHOOL AS A MENTAL SPACE

## Spaces for learning

In the continuously changing society, learning is a natural and permanent part of our life. As learning is brought closer to life, it is only natural that it also takes place in a space that is close to life. **A contemporary school allows us to choose where and how to work.** The learning space encourages various study methods while also allowing both active and relaxing breaks for restoring one's attention and concentration. Thanks to portable smart devices, we can choose our place of work – it no longer depends on the location of the tool but the type of work. Various spatial solutions or easily adjustable furniture support concentration, listening, brainstorming, discussions, creative work etc. Both classrooms and common areas should be flexible and multifunctional.

## Outdoor learning

Outdoor education does not merely stand for a classroom that is set outdoors. An outdoor space provides different possibilities for learning by means of games, study trips, observations and activities (making a fire, maintaining plants etc). Outdoor learning contributes to environmental education at large. It will be more successful if supported by the location of the school, if it is easy and convenient to get out of the building, if the school yard is inviting and versatile and if sufficient time is saved for outdoor classes in the timetable. The latter also applies to recesses outdoors. The outdoor space provides students with different challenges from regular indoor activities, they can develop their skills independently, put their abilities to the test, explore and go on adventures.



**Outdoor learning and breaks are supported by a versatile landscaping solution highlighting the variety of possibilities and providing site-specific spatial solutions for different activities. Outdoor activities are enhanced by small constructions and outdoor furniture.** Skørping School, Denmark. Landscape architecture VEGA landskab. / Photograph: Leif Tuxen

**Left: An open library is suitable for both individual learning and common activities.** Rapla State Secondary School, Estonia. Architecture Salto architects / Photograph: Tõnu Tunnel





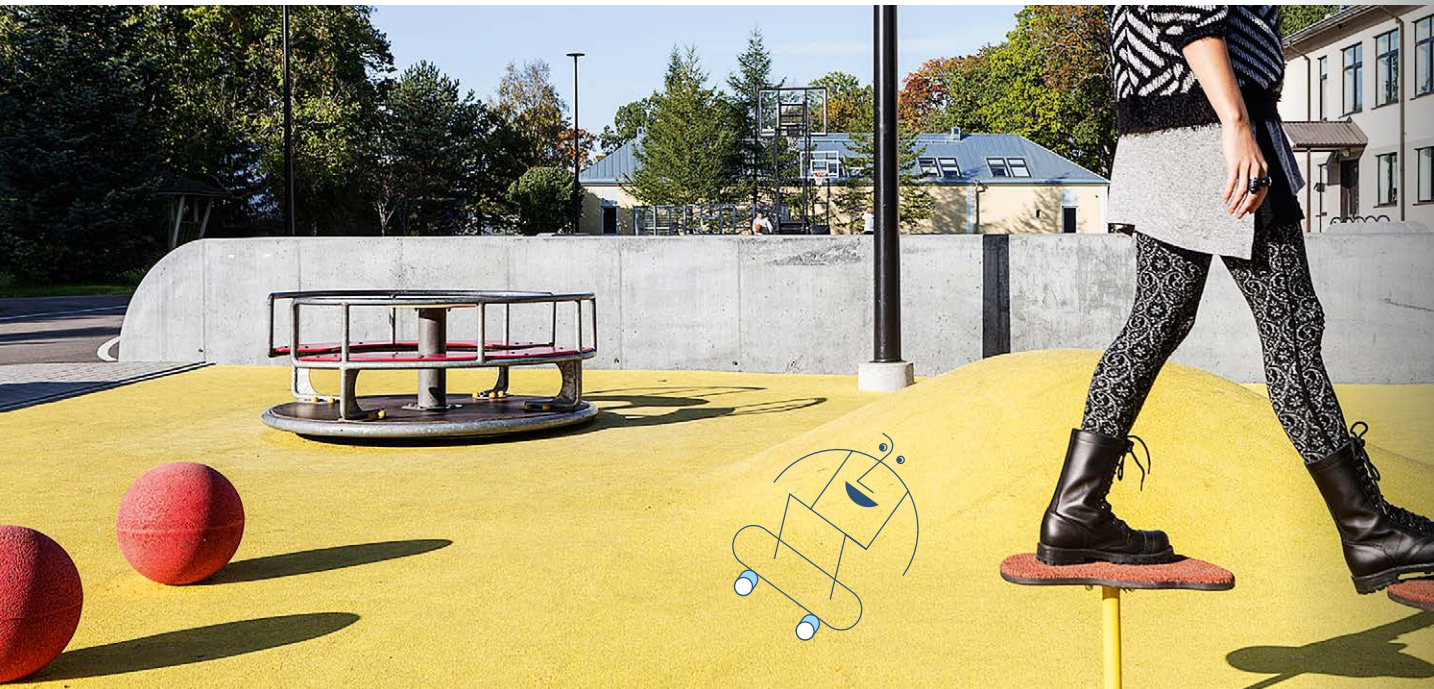
Learning outdoors does not mean merely a classroom that is taken outside. Instead, it is a skilfully employed diverse environment that can be immediately perceived and learned from. Skørping School, Denmark. Landscape architecture VEGA landskab. / Photograph: VEGA



# Exercise

Exercise is important for activating our body and invigorating our mind. Change of environment always has a positive effect, it boosts our brain activity and allows us to relate abstract knowledge with particular places and real-life examples. A good learning space invites students to learn and spend time actively outdoors while also providing physical activities indoors. At the same time, an effective space does not prescribe in detail how a place or a structure should be used, instead, it encourages children to use their creativity both in games and in instruction. As children tend to spend most of their days at school, with sedentary lifestyle constituting one of the greatest contemporary health risks, it would be mandatory to encourage children's activity in the school area and equip it with various creative options from the very beginning.

A school environment that encourages exercise provides everybody with an appropriate physical challenge regardless of their age, experience or skills. Structures allowing creative and free activities are an excellent alternative to standardised sports fields. For instance, with simple wooden boardwalks or undulating landform features in the school yard you can provide new opportunities for instruction as well as active recreation.



Interesting landform features, materials and markings allow for various activities such as skateboarding, BMX and scooter racing, hopscotch, balance exercises, creative games etc. The area around Mäetaguse Basic School. Landscape architecture TajuRuum / Photograph: Kristjan Mõru



The elements do not have to prescribe exactly how to use them. Haapsalu Basic School, Estonia. Architecture 3+1 architects / Photograph: Tõnu Tunnel

A playful track inviting you to put your skills to the test and enhancing cooperation. Skørping School, Denmark. Landscape architecture VEGA landskab. / Photograph: VEGA

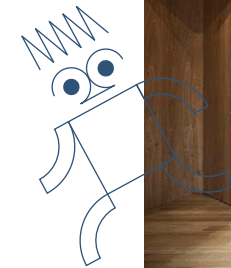




# SCHOOL AS A PHYSICAL SPACE

## Architecture

Architecture is an important part of the school identity. We all wish to relate our identity with our favoured places. The school should allow the formation of such connections for highly different personalities. The physical space is expressed in the architectural features, materials, layout and details. **A good space supports one's personal development.** The physical space affects our state of mind as well as the daily communication and learning. According to psychologists, learning results improve when the learning environment can be changed. A change of environment boosts brain activity and allows to link abstract knowledge to real-life examples. A good space never dictates how to use a place or a construction, instead, it encourages children's creativity in both games and instruction.

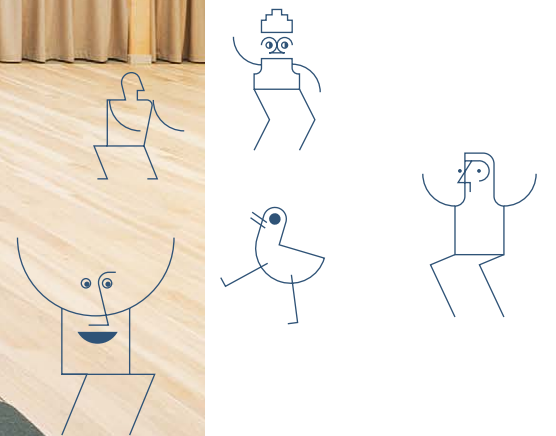


**Materials, form, lighting, selected views and details – their interplay is the basis for distinctive architecture and a unique school environment.** Auer Elementary School annex, Italy. Architecture bergmeisterwolf architekten / Photographs: Oskar Dariz





Timber is a warm, cosy and environment-friendly construction and finishing material that should be used in schools more often. Photo: Viimsi State Secondary School, Estonia. Architecture KAMP arhitektid / Photograph: Maris Tomba



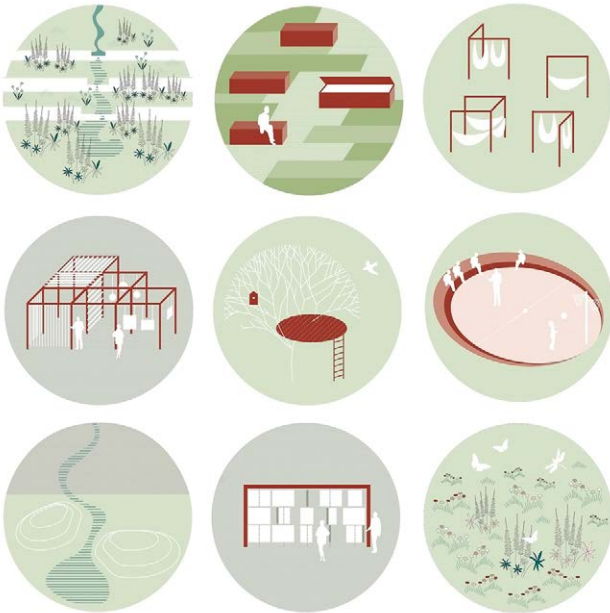


# Landscape architecture

A good school environment is a comprehensive whole and it is therefore natural and necessary that the school yard is designed together with the building. The school yard functions well when its sections are logically divided and well connected, with user-friendly spatial solutions. In terms of logistics, it is important to consider the paths taken by pedestrians and cyclists, the parking area for bikes and cars, the maintenance area with routes for garbage trucks or vans. It is important to pay attention to the connections between indoor and outdoor spaces and consider various seasons, light and shade as well as weather conditions.

# Green areas and gardening

Green areas play an indispensable role in enriching the school yard areas. With plants, we can provide shelter and articulate spaces, create green areas and habitats for various species. A well designed school yard is an open and practical study book for exploring environmental education topics, for instance, when teaching rainwater treatment, composting, various plants and animals etc. By giving preference to local species, children can learn about them in science classes. The school's vegetable garden allows children to acquire gardening skills and assume responsibility for taking care of plants, grow their own crop and eventually use it in the school canteen. Arrangements could be made with the local community who can take care of the garden during school holidays. The surrounding natural environment is a great value that could be used in instruction and games.

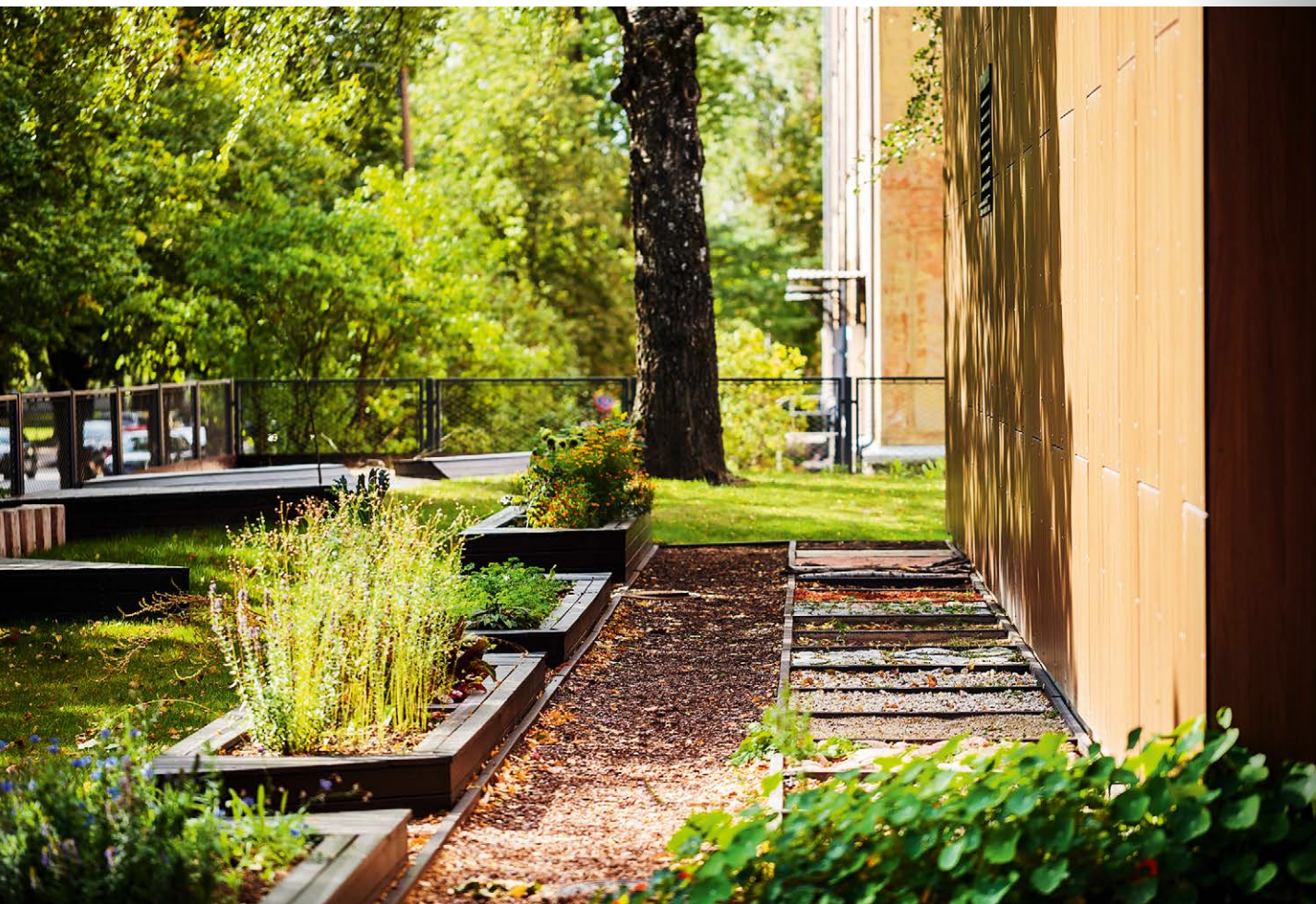


Principles of the use of space – connection with nature, sensory experience, motivation to exercise, health benefits, learning by doing, environmental education. Diagrams for Wolfgang-Borchert Schule project. Nomaji maisema-arkkitehdit, Finland / author: Nomaji maisemaarkkitehdit



Interesting outdoor landscape can also be made of concrete and stone. Inventive forms and details encourage children to make creative use of the space, for instance, as a learning tool in science classes – the rocky landscape can be used to learn about the movement of water, behaviour of sand and snow etc. An urban park in Burghausen, Germany. Landscape architecture Rehwaldt Landschaftsarchitekten / Photograph: Landezine





The gardening patch with a tactile track helps children to try their hand at gardening and plants – they can learn about plant life and various materials with all their senses. Environmental education can be taught best through immediate contact, experience and activities – by taking care of the garden, building a rain garden, planting trees etc. The garden in Naerumaa Kindergarten, Tartu, Estonia. Landscape architecture TajuRuum / Photograph: Erge Jõgela



In case the school is surrounded by natural environment, it is a good idea to employ the various elements – flowing water, stumps, fallen trees, shrubs – as a rich variety of study materials for science classes. / Photograph: Mari Ariluoma





**Non-conventional furniture sharpens attention and broadens imagination. Allowing children to design the space themselves with furniture and small structures is a highly versatile and useful learning activity.** Katrinendal Basic School, Denmark. Architecture JJW Arkitekter / Photograph: Torben Eskerod

## Furniture and small structures

Contemporary schools must provide a varied and flexible learning environment that can be easily adapted to the particular class or task. It means various pieces of furniture as well as various options for their combination. Flexibility is particularly important in case of active learning. Playfully designed furniture and small structures encourage people to use the space more creatively and resort to imagination more confidently. Seats do not need to be classic benches or swings as the main playground fixtures. The more exciting the form, the more versatile its uses. It is also worth experimenting with lightweight constructions, easily movable furniture and temporary solutions as a simple and inexpensive way to test their functionality before commissioning more permanent features. Convertible spatial situations must be foreseen in the design project and supported also by flexible solutions for lighting, electrical and IT-systems.



**Even a small disruption in the monotony, such as single colourful chairs, carry an important message: everything does not need to be the same and even a common situation can be playful. Similarly, even solutions stemming from purely practical needs (improving the acoustics) can have an educational value. The felt piece on the wall broadens children's aesthetic horizons and the elements can be also made convertible, thus further spurring their creativity.** Above: Mosfellsbar School, Iceland. Architecture A2F arkitektar / Photograph: A2F

**Children's library as a creative environment. The space with no chairs encourages independent and creative thinking as well as entrepreneurship: where is the cosiest place to read a book and in what position?** Below: A play centre in Sidney, Australia. Interior architecture PAL Design / Photograph: Michelle Young





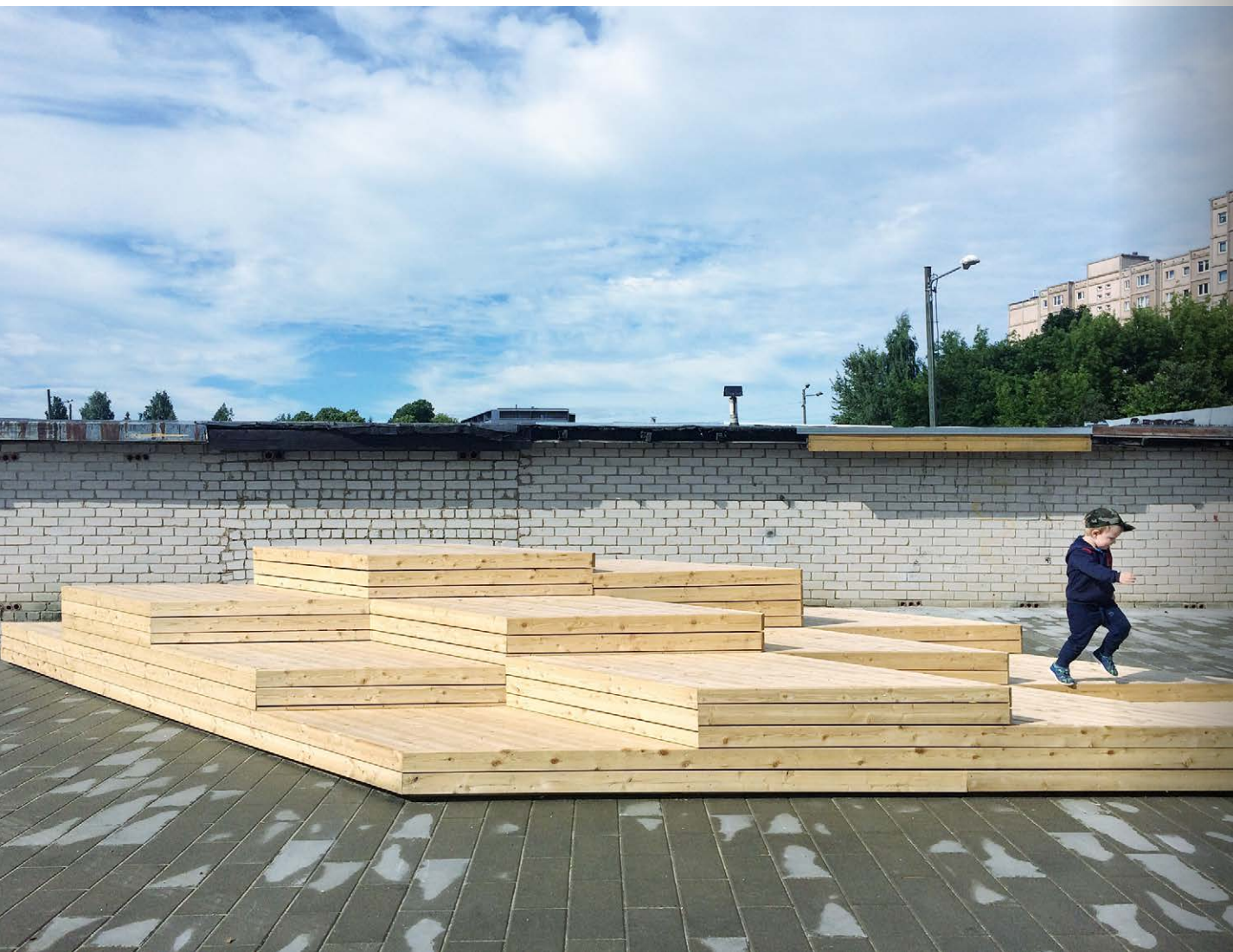


**Elusive forms and features train children's imagination. What could we do here?**  
**How to describe this place to a friend or parent?** Interactive water installation.  
 Author Amanda Almvide in cooperation with the authors of Berget playground  
 Akay and E.B. Itso. Jubileumsparken, Gothenburg, Sweden. / Photograph: Amanda  
 Almvide



Playing with water strengthens the bond with nature and oneself. A rainy day does not necessarily mean bad weather and putting one's skills to the test in limited conditions can be more liberating than complete freedom. A playful water feature, part of Berget playground.  
 Authors Akay and E.B. Itso. Jubileumsparken, Gothenburg, Sweden. / Photograph: Karin  
 Bachmann





**Temporary furniture and simple structures allow to change or test the use of space with simple means.** Non-motorised traffic area in Annelinn, Tartu, Estonia. Landscape architecture TajuRuum / Photograph: Terje Ong



**Smart solutions are not necessarily expensive. The catalogue selection is often more expensive while providing less variation, flexibility and character.** Marlborough Elementary School, London, England. Dixon & Jones / Photograph: Paul Riddle



**Fun balancing acts or relaxing stretching exercises can be done on very simple forms, with students also involved in their creation.** The square in front of Majorstuen School, Oslo, Norway. / Photograph: Terje Ong



3 UDSKOLING  
DANSEAL

2 MELLEMTRIN  
MOTORIK

1 INDSKOLING: BJØRNE & KATTE  
KLUB/UNGEMILJØ  
PÆDAGOGISK LEDER DAGTILBUD  
TANDKLINIK  
SUNDHEDSPLEJERSKE

0 INDSKOLING: SAVANNE  
ADMINISTRATION OG LEDELSE  
FREDERIKSBERG BØRNEHUS  
MADKUNDSKAB  
MULTISAL  
SAMLING  
CAFÉ  
TEATER

PÆDAGOGISK LEDER →  
DAGTILBUD

TANDPLEJE ↗  
SUNDHEDSPLEJE  
BJØRNE  
KATTE



## Infographics

Clever infographics is an important part of the learning space. A comprehensive graphic design starts from the school's name on the façade and includes the school map, door numbers, signs, distinctive markings for different areas and many other features. In addition to guiding and informing people, infographics also contributes to educational and playful spatial design. The selection of typeface and colours, the position of texts and good graphic design support the daily work at school. The best results are always obtained with close cooperation between the client, architect, interior architect and designer.



Good infographics functions together with the architecture. In addition to giving purely practical information, you can also combine clever examples from maths, chemistry or language instruction into the interior design. Frederiksbjerg School, Aarhus, Denmark. Architecture Henning Larsen / Photograph: Peter Nørby



# RECOMMENDED READING AND REFERENCES

(all materials are available in Estonian)

## The new learning concept, exercise and space:

K. Klementi, K. Tõugu, G. Arro, M. Kull and A. Hannus. Koolimaja kutsub liikuma. Näiteid liikumist toetavatest ruumilistest lahendustest (A School Building Calling for Motion. Examples of Spatial Solutions Supporting Physical Activity). 2015 / Handbook <https://b210.ee/koolimaja.pdf>

Liikuma kutsuv kool (Schools in Motion) / A website providing ideas and tips on how to fit more exercise into schooldays [www.liikumakutsuvkool.ee](http://www.liikumakutsuvkool.ee)

A video of the headmaster of Viljandi Secondary School talking about the architecture of their new school in relation to learning:  
<https://www.uttv.ee/naita?id=18358>

A video on the environment supporting learning on the example of Põlva Secondary School: <https://edidaktikum.ee/et/content/videoklots-õppimist-toetav-keskkond>

## Spatial education:

Spatial assignments for general education schools: [ruumiharidus.ee](http://ruumiharidus.ee)

The educational permanent exhibition on how space can be experienced "Explore Space!" <https://arhitektuurimuuseum.ee/en/exhibits/permanent-exhibition/explore-space/>

The learning space studies and visions by children and youngsters:  
[kooliruum.ee](http://kooliruum.ee)

## Science and environmental education:

M. Uustal, P. Kuldna and K. Peterson, Elurikas linn / A handbook with tips on how to create biodiverse environments <https://cdn.sei.org/wp-content/uploads/2018/02/4359.pdf>

## For inspiration:

V. Capresi and B. Pampe. Learn-Move-Play-Ground. How to Improve Playgrounds through Participation. 2012 / <https://www.jovis.de/en/books/details/product/learn-move-play-ground.html>



The booklet on the changing learning space is an essential guideline for schools planning changes in the near future and even more essential for schools not planning any changes in the near future – they will have enough time to prepare for the change with enjoyable thoroughness. With its numerous visual examples, the booklet is also meant for parents, students, teachers, politicians, public servants and everybody else who has ever thought about why schools and school yards are what they are, what they could be like and how an idea is transformed into a real building.

