

# Creativity and Problem Solving Skills Development through Spatial Workshops

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## **Abstract**

**GYIK Art School worked out a special methodology for teaching art in Hungary, exist for 40 years and renewing time by time. The main goal of the method is the children create their works by intuition and not copy a masterpiece while use contemporary art tools. As an architect I worked out a spatial perception skill developing program, based on GYIK's methodology for age 5-12. In the program the children gain experience by creation, developing their spatial perception, spatial thinking skills, problem solving skills and creativity. I worked out special tasks for primary school curriculum that based on this methodology.**

**For pedagogues I created an accredited forder education program with my colleges. Our goal is developing the conscious of design-culture of pedagogues by diversity their approaches, to be able to built the methodology such as in art education like in other subjects as well. Through art the children problem solving skills developing, and find the answer for a problem not as a typical but find new ways. Creativity will most important in the future where all the information are available.**

**A tried the methodology with special groups as well, like blind children and talented children.**

**Comprehension and cognition of space and object culture could eventuate cultural changes in design culture and design thinking of the society.**

**In my PhD study at Moholy-Nagy Art University in Hungary I research interdisciplinary the connection between spatial visuality, brain- neurobiology and psychology.**

## **Keywords**

**Development of creativity, development of spatial perception, development problem solving by art, design culture, approach diversity in pedagogy.**

## **Introduction**

Spatial thinking is essential.

Is it really?

Using new technologies, a good sense of direction is not necessary any more: our GPS can take us anywhere. We do not need to be able to picture the structure of a city, the alignment of streets. Our children have barely seen real maps.

Our cultural environment has changed significantly. This modifies the way the human nervous system works, as well as our way of thinking and behaviour. The human talents are also changing. Changes in the nervous system “rewire” the brain. We need to use our long-term memory less, and even though we encounter a vast number of visual stimuli — our visual memory is also declining.

Have we got to the point of evolution where our brain does not need receptors responsible for spatial thinking, and our brain is rewired? Or perhaps such connection is not even established

in the brain of the digital native?

Studies prove that there is a strong connection between dyslexia and spatial visualisation. Also, natural sciences and spatial visualisation are interconnected. It shows clearly in case of talented children. For example, take kids whose mathematical talents are identical, but whose spatial visual talents differ. Children with better spatial visual talent have a better chance to improve their mathematical skills.

Handwriting is also losing importance: children do less and less manual activities. During spatial construction, it is essential to use both hands. This is also very important for establishing a connection between the two hemispheres of the brain. The good news is that spatial visual qualities can be developed. It is our obligation to develop it.

I am an architect. 7 years ago, in the Children and Youth Art School Workshop, I developed a method that develops spatial thinking of children between the ages of 6 to 10. In this method, kids are introduced to contemporary art mainly. My program builds on the basic methodology of the Workshop. Rather than spending time copying patterns, children prepare works of art based on their intuition. The Workshop has been running for 40 years and has had great effect on the thinking and future of several thousand children. Our aim is not to bring up artists, but to educate through art. There is an 'Animal Masters of Construction' theme in my Spatial Thinking Development group, where children use their creative energies enthusiastically to build beaver dams, termite mounds, ficus subscrabrida, beehives, and so on. They experience the laws of physics through playful tasks. They connect to environmental culture, material culture, built environment and abstract contemporary art. Through creative processes, their critical thinking, creativity and self-confidence develop. Their design thinking, which is necessary in every aspect of life, is also developed. After consulting primary school teachers, I created tasks based on school curricula. Changes in technology lead to reforms in education. I find it significant not to isolate school subjects, but to handle them consciously in an integrated way. For example,

we went through the functions of the human body. Children made life-size sculptures, and by using them, they presented several life functions, like digestion, breathing, and so on. By identification with the works created, children were able to consider the way their bodies work, and consequently, they achieved better exam results. We developed several topics related to Natural Sciences. The method even caught attention of universities. A growing number of universities and colleges invite me to run workshops for students to change their attitude. Our program became part of the Visual Culture Research Group lead by the Hungarian Academy of Sciences and Eötvös Lóránd University. In order to share the methodology, we run trainings for teachers. Based on their feedback, the program is difficult to realise in school environment due to the materials and space the artworks require.

In my PhD research, I am investigating whether it is possible to digitally replace the construction processes in actual space and using actual material. My field of research is interdisciplinary, just like the methodology I developed for children. For this reason, I formed a research group with cognitive psychologists and IT experts. We would like to examine the brain functions of children aged 6 to 10 by using EEG machines, during the creation process in actual space and virtual space. A few years ago there were some children in my Workshop group who were blind from birth. In my research, I would also like to examine whether there is a difference in brain functions during spatial creation for fully sighted and blind children.

The results can show whether manual construction is still legitimate from the point of spatial thinking development, or whether we should forget the messy creation processes which require space. Should we perhaps develop a method that leads to the most efficient development by using manual and digital activities combined? We are planning to publish our first findings within a year approximately, which I am ready to report on at the next INSEA World Conference.

Please, do not forget! Spatial thinking is essential — not only for architects, sculptors, artists but also in everyday life.