



Abstract

A small Croatian company has developed a set of innovative educational materials that enable children learning important, basic mathematical concepts with ease, joy and through play. Due to various levels, they are suitable for pre-school and school children, as well as for children with learning and other specific difficulties (dyslexia, ADHD, etc.). The company is looking for the industrial partner who would be interested in commercialization of the invention or in joint further development.

Description

Many children have difficulties with some or most aspects of mathematics, which can be an obstacle for success in school and later in life. It is important both to recognize and deal with this problem as soon as possible.

The inventor is expert in logopaedics (speech therapy) with many years of experience in working with children who have development and learning problems.

The developed didactic tools with their novel technical solutions enable cognition and understanding of key mathematical concepts, without need for complicated mathematical terminology, lessons and instructions. The rules and relations are not proved by formulas, but are shown in a visible and tangible way.

They teach without appearing to teach, through arranging, exploration and play, different variations and combinations, without giving usual mathematical tasks. All this is achieved with a realistic display of quantities and their relations, different shapes, positions and colours, with the help of squares and cubelets. It all enables arranging, categorizing, equalizing, joining, sequencing etc., so that adding or mere counting is sufficient for checking the visible quantities and their relations.

The didactic tools consist of a set of jigsaws, inserters, abacuses, three-dimensional arrangeable

and separable models, mathematical mental maps, arranging pads, tables, cylinders, sticks, prisms, etc..

Their contents range from mathematical basis (relations, numbers and spaces, shapes and quantities) to theorems and rules of higher mathematical levels (multiplication, division, squaring, cubing, Pitagora's and binomial theorem, sum of square sequences and other regularities, some of which have new and unknown representation. With their inner consistency and coherence, they enable numerous combinations and research.

Every tool can function independently in a clear and unambiguous way. The whole package besides inner consistency and coherence, neurophysiological basis and common essence, offers possibility to develop gradually from one stage to another.

Innovations and advantages of the offer

The didactic tools contain following elements:

- Heureka principle (children notice and investigate by themselves)
 - principle of verbalization (they encourage talking about mathematics)
 - principle of visualization (mathematical rules can be seen and touched)
 - principle of different levels of cognition (one can go from playing to formulas)
 - principle of repetition (mathematical skills are developed in many diversified and funny ways)
- Other advantages are:
- They contain various levels of cognition and are thus not especially connected to specific capabilities or age.
 - They rely on natural mental abilities of logics and perception and are much closer to the way children think and play
 - By providing the joy of cognition they enable more pleasurable, faster and easier understanding, practicing and memorizing
 - Besides solving many mathematical problems, they offer possibility for research and finding of new solution
 - They are not expensive
 - Mathematical language is universal (numbers, shapes, bodies) and no larger interpreting interventions are needed
 - They contain numerous opportunities for creation of software packages for interactive CD's.
 - There is a wide possibility of application, in different countries, for different ages and always new



generations.

Current and Potential Domain of Application

Didactic toys for all kinds of children, didactic tools for pre-school and school children, interactive CD's, didactic tools for children with learning difficulties, ADHD, dyslexia, dyscalculia, didactic tools for gifted children.

The current experience has shown that these tools help children in better understanding of teaching material in schools, although they can be used even earlier than anticipated in the school programme. They could be developed into additional manuals standard program in mathematics.

They can be thus used in kindergartens, schools, games rooms, camps, hotels, at home, and everywhere where there are children.

The experience has also shown that these tools can be used to diagnose both children with learning problems and gifted ones. In addition they can also serve as therapy - rehabilitation in learning difficulties.

For further information (including IPR status)

please contact:

Leandra Vranjes Markic1

Phone: 38521302438

Fax: 38521302438

Email: leandra@pmfst.hr