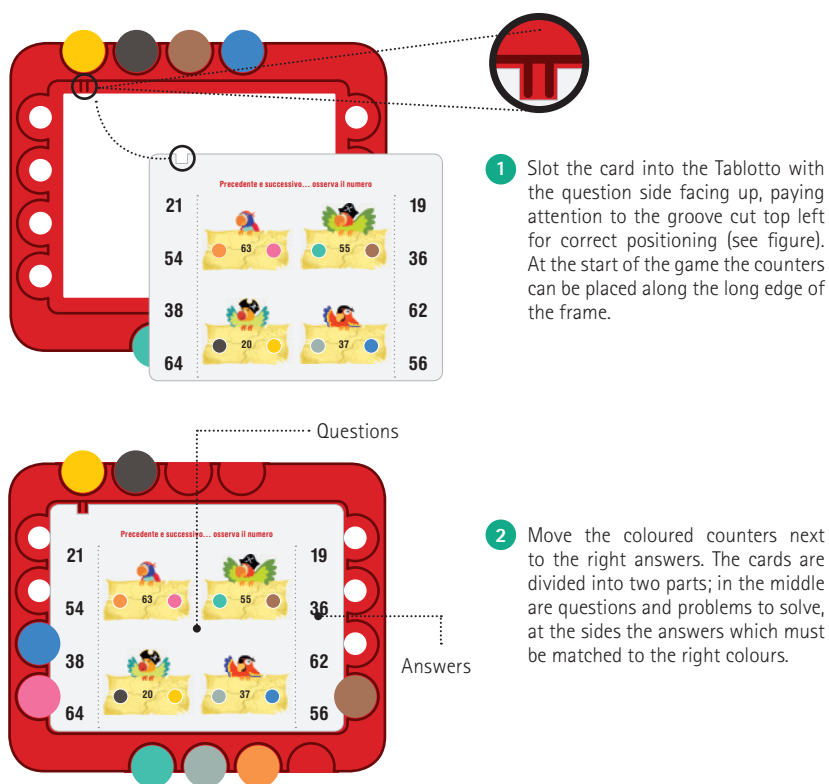




# The self-correcting learning system

Methodological guide by Desirée Rossi

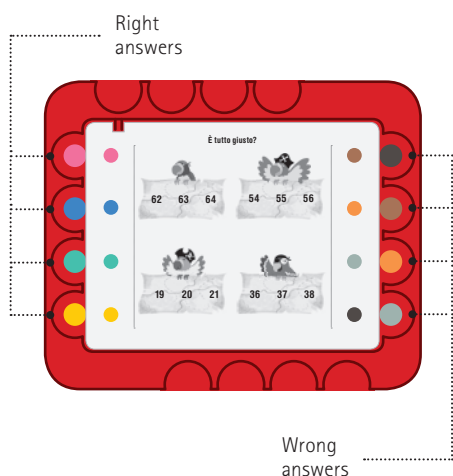
## How it works



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- 3 Once all the counters have been placed, turn the game to check if the answers chosen are right.



- 4 You can check to see if the colours match and read the right answers. If any of the colours don't match just push the counter out and carry on playing.

## Learning by playing

Tablotto comes from the idea and the desire to take advantage of the potential of play and to use it, not only to entertain children but also to widen and consolidate the knowledge they pick up in other contexts. TABLOTTO is a game which aims to promote growth through recreational activities which have defined and gradual objectives and are important in building competences. The game works by allowing children to test their own abilities independently, this is the “engine” which rouses interest and activates the child when faced with the different topics contained in the cards.

Tablotto looks like a tablet, an object which is recognised and loved by the smallest of children, rouses curiosity and — differently from a technological device — activates children’s resources and is not pre-defined. The objective is that of giving children

a game which does not render them passive, but promotes their independence in understanding tasks and in making connections with subject areas learnt at school, so that they learn to use their knowledge and apply it everywhere. The logic of the answers is intuitive, but it is not obvious or the same for all the questions: children have to pay attention to each exercise. Tablotto is designed to be a game where its «interactivity» lies in the opportunity to use it together with other children and where tutoring is stimulated by the unique structuring of the exercises. The key players are therefore the children and their abilities.

The adults' only job is to give children the space and time to play the game so that they can experiment and «build» their own skills. It was designed to provide suitable stimulation with the content and activities on the cards satisfying children's growth requirements and to identify activities capable of activating attention and higher cognitive processes, like problem solving, cognitive flexibility, critical reasoning and metacognition.

### *Learning independently*

Tablotto has been designed to be used by children on their own, without the supervision or mentoring of an adult. For this reason, its is easy and intuitive to use: a frame where the content cards are slotted in and are resolved by slotting the coloured counter next to the right answer. Children can play the game on their own due not only to the simplicity of the «physical» material but also to the types of exercises contained in the cards, graded by difficulty and according to age.

Moreover the variety of exercises (based on association, classification, discrimination, finding the odd one out, filling the gaps, cause and effect logic, comprehension, logical reasoning and meta-cognition etc.) allows each child to find their own area of personal preference. The cards are numbered but you don't have to follow the order given. Children can and should experiment with the game as they find fit, getting to know how to use it, starting from their own personal inclinations and abilities in an environment which instils confidence and enables them to «face new challenges» in less well-known areas (areas of proximal development). Tablotto is therefore a game which can also be used at school in an entirely customisable way, by adapting it to the individual requirements of each pupil.

### *Checking the answers*

Tablotto works using a self-correcting mechanism and stimulates independent thought. It is based upon moving beyond a transmissive model of knowledge to the idea of learning as a knowledge building process, a concept which was pre-empted by the studies on Piaget's observations (1971), by Montessori's didactic action (2000), and

that many others have pursued through constructivist didactics and pedagogy (Varani, 2005). Knowledge is not something that can be «transferred», rather it is a dynamic process that children actively build and elaborate on in relation to their own experiential context. From this perspective there is a complete overhaul of the concept of mistakes, which go from being «critical» elements which are evaluated negatively to elements which you can learn from and are to be considered positive (Mollo, 2011). It is through mistakes that we reach the understanding «of what doesn't work and of how it could work» and thus children must be left to work out their mistakes and to learn from them. When playing with Tablotto children will not feel monitored and evaluated by another person, but they themselves will check if their thinking and reasoning are right with regard to the topic being dealt with on the card. This will make them feel autonomous and competent, passivity when faced with mistakes is avoided and, on the contrary, the desire to find out «what went wrong» is triggered and children are able to reflect on their reasoning and learn from their mistakes. The fact that there is only one right answer helps children retrace their steps whenever the answers don't match during the game. There is thus a self-correcting and self-checking mechanism during the activity which is needed to be able to correctly match all the counters. The final check can be made by turning the game over and checking that the colours and counters match. Furthermore, learning from mistakes encourages the memorisation of content and of effective study strategies.



1 Example of a card where different items must be matched up.

## *Testing yourself*

Tablotto has been designed with a question-answer matching logic using colours; the questions and answers are always laid out differently on the cards so that nothing can be taken for granted: reasoning must lie at the base of every choice or match. A critical issue that the majority of schoolteachers point out is that pupils pay little attention to tasks and to understanding them properly.

This often happens because children are not trained to understand what they are asked, in many cases the adult steps in and gives a lengthy explanation of what they have to do, thus removing the pupil's habit of making an effort to understand the task. Tablotto is based upon the idea that children must be given the space to activate the skills they have already acquired: using the material at their disposition children must intuit the task implied by the short heading on each card.

The intent is therefore that of stimulating «cognitive exploration» as well as resolving the «problems» set by the game; careful observation guides reasoning on understanding the task, which is not explained in its entirety. This aims to activate a child's «interactive components» (Bruner, 1968): speculating, formulating hypotheses and making mistakes in order to find the right answer. Tablotto not only focuses on concepts, but also on learning methods (exploration, reasoning, problem solving). There are no examples given on the cards, instead elements which help the child understand the logic of the exercise are provided. The self-checking mechanism allows children to develop their sense of self-efficacy and does away with external evaluation, which often threatens self-esteem and motivation because it is perceived as a judgement.

## *Having fun*

Tablotto's primary goal is to entertain children. The recreational component and the feeling of pleasure towards it stimulates motivation to take on activities which require effort and are not immediate. The game thus becomes a privileged space where children learn that challenges, fun and creative imagination can mix. The Tablotto cards come with appealing and stimulating illustrated borders. The child's imagination can go beyond the contents of a card, a story can progress or be added to or find an unexpected or different ending. When challenges also involve friends and schoolmates, interest increases.

## *Playing with friends*

Tablotto has also been designed to be used as a game for cooperative play

The cards can be completed with a friend and different stimuli can be worked on allowing each child to take part according to their abilities, in line with the principle

of inclusion. If, for example, a child has difficulty deciphering written language, they can participate by interpreting the pictures and can contribute to solving the card by matching the coloured counters. Teachers who know their pupils well can use the game in a targeted way in order to include pupils with special educational needs in the activity and thus encourage their sense of efficacy and self-esteem. Sharing the task and having to work on the same material may also bring about disagreements and clashes which will have to be debated upon and explained by the children themselves in order to reach a shared decision: in this way co-building of knowledge occurs (Pontecorvo, 2007).

Tablotto can also be used in small groups in order to activate emotional relational components, which are an added value compared to just knowledge: the group sustains, reassures and motivates. When a child is struggling they can be sustained both on a cognitive and emotional level by their schoolmates or friends. The risks and uncertainties inherent to the task can be shared so that children can test themselves and experiment in a supportive «space» where there is mirroring among peers, of difficulties too.

### Choosing between numerous different topics

The Tablotto card packs offer different types of exercises and content, which can be renewed and replaced. The main areas which are developed using the cards are:



- 2 In this card the directions towards the final position must be given.

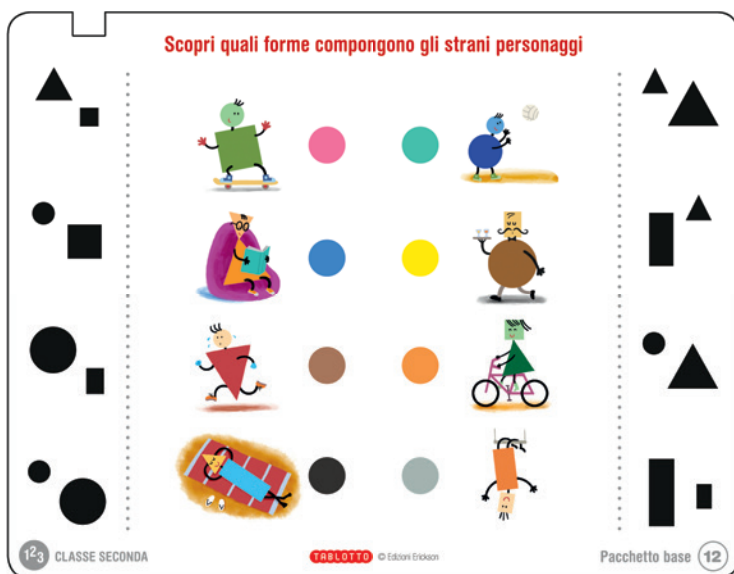
reading and writing skills and Italian, logic and mathematical skills and calculation, logical reasoning processes and perceptive abilities.

Each pack contains a rich variety of abilities to be developed: phonology, spelling, text comprehension, correctly understanding tasks, lexical enrichment, inferential logic, classification, logical causal and logical temporal association, knowledge of mathematical elements and operations, problem solving, interpreting data and graphs, and recognising and using geometric shapes. As well as basic knowledge, the cards aim to help children develop cognitive flexibility, problem solving skills and critical thinking skills.

The activities centred on a game boost concentration and attention, working memory (developing the topic on the card and always bearing in mind the colour matching criteria) and eye-hand co-ordination skills (in using the counters).

### *Choosing the most suitable exercises for their age*

The Tablotto cards have been designed based upon the competences that children learn gradually over the course of their development. The exercises and types of stimuli are graded according to age, with more visual input for nursery age and more



**3** Card for recognising and using geometric shapes

written language for primary age. The content found in the subject areas (Italian and mathematics) was developed in line with school syllabuses. The different packages on offer have been designed according to criteria of increasing competences required and difficulty. The symbols at the bottom of the cards give the suggested age and the subject area.

### *Practising at home and at school*

Tablotto is a game which can be used in different contexts, from home to school and in recreational contexts. It is a game but it can be used to revise, remediate and develop. Using the packs, which are divided by subject, children can revise or consolidate previously acquired knowledge, fill in any gaps, reformulate knowledge in new conceptual contexts and memorise what they have learnt, all due to their cognitive activation during the exercises and the fact that they have learnt through their mistakes.

## Bibliography

- Bruner J. (1968), *Studi sullo sviluppo cognitivo*, Roma, Armando.
- Mollo G., «Il valore dell'errore nella dinamica dell'apprendimento», in Binanti L. (a cura di) (2001), *Pedagogia, epistemologia e didattica dell'errore*, Cosenza, Rubettino.
- Montessori M. (2000), *L'autoeducazione nelle scuole elementari*, Milano, Garzanti.
- Piaget J. (1971), *Psicologia ed epistemologia: per una teoria della conoscenza*, Torino, Loescher.
- Pontecorvo C., Aiello A.M. e Zuccheromaglio C. (2007), *Discussendo s'impara*, Roma, Carrocci.
- Varani A. e Carletti A. (2005), *Didattica costruttivista. Dalle teorie alla didattica in classe*, Trento, Erickson.

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