Attentive Teaching – teaching for understanding in heterogeneous classes

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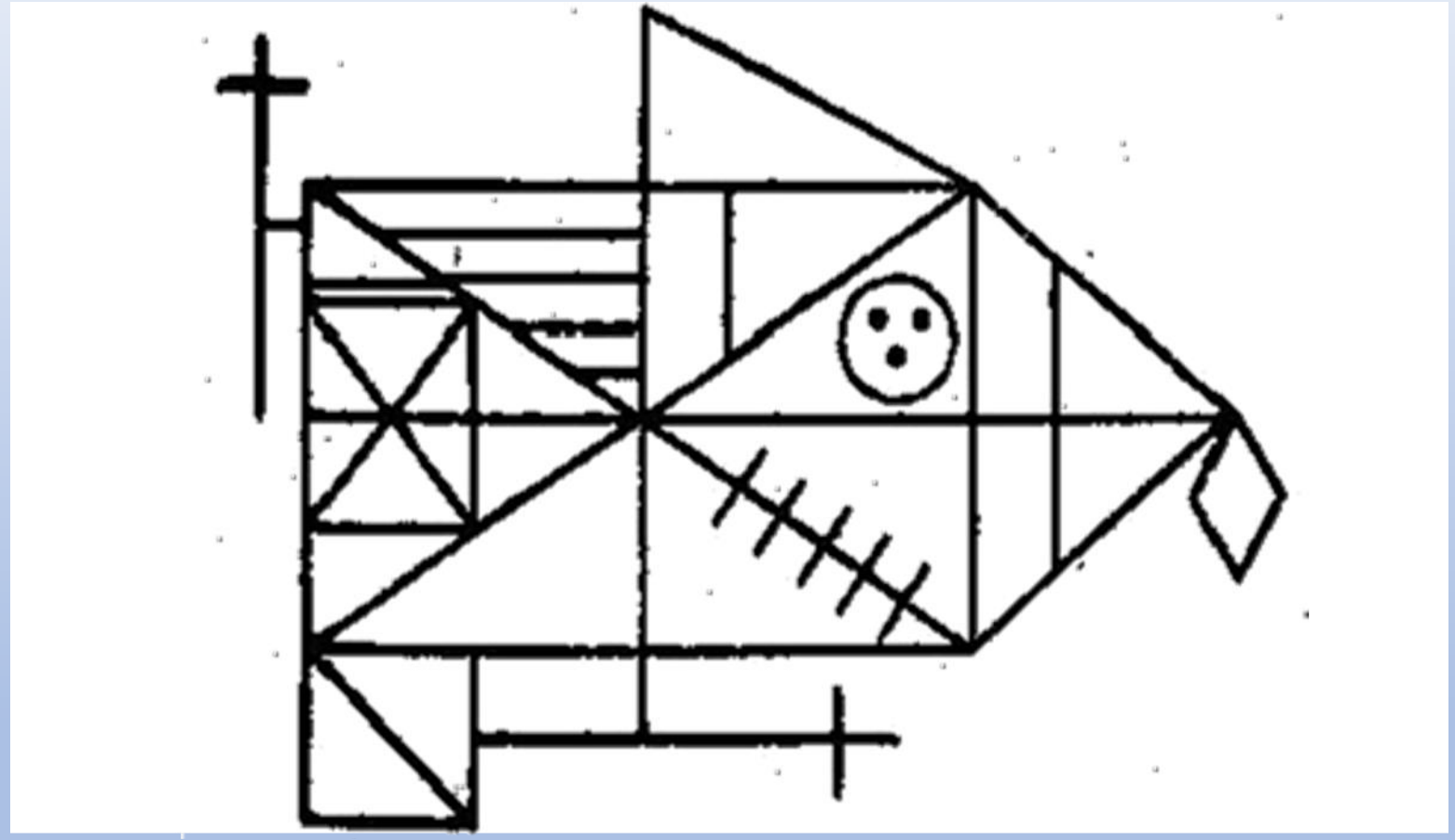
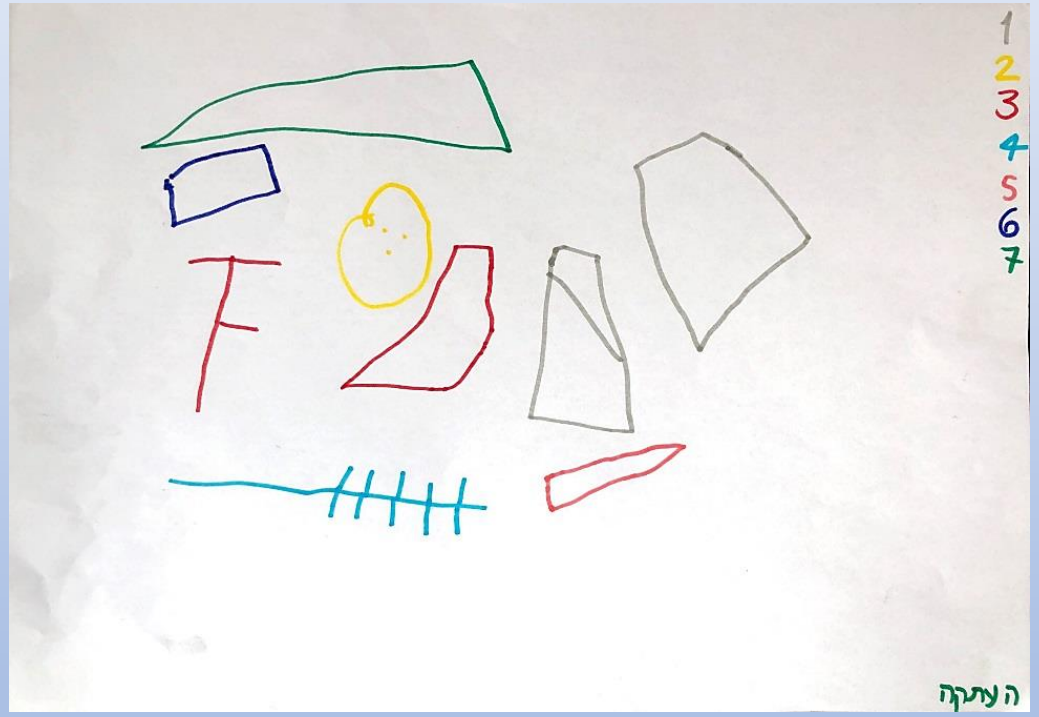
Thinking and Seeing

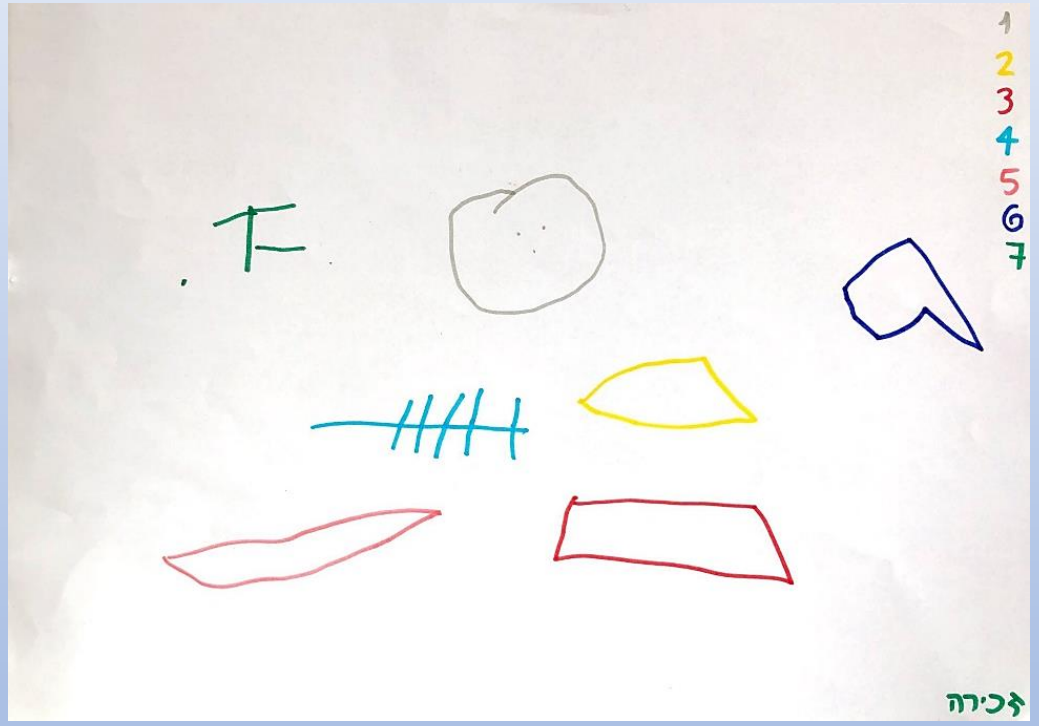


Rey's Complex Figure

Analyze the following copy and memory of the Complex Figure



copy



memory

Feuerstein's Deficient Cognitive Functions and the communication with the environment

Feuerstein's Deficient Cognitive Functions are the basis for the analysis of a drawing of a learner. They enable the mediator to discern the way the learner sees the environment (the reality) meaning the way she thinks in this context

One can change the cognitive functioning of a learner using mediation

Episodic Grasp of Reality

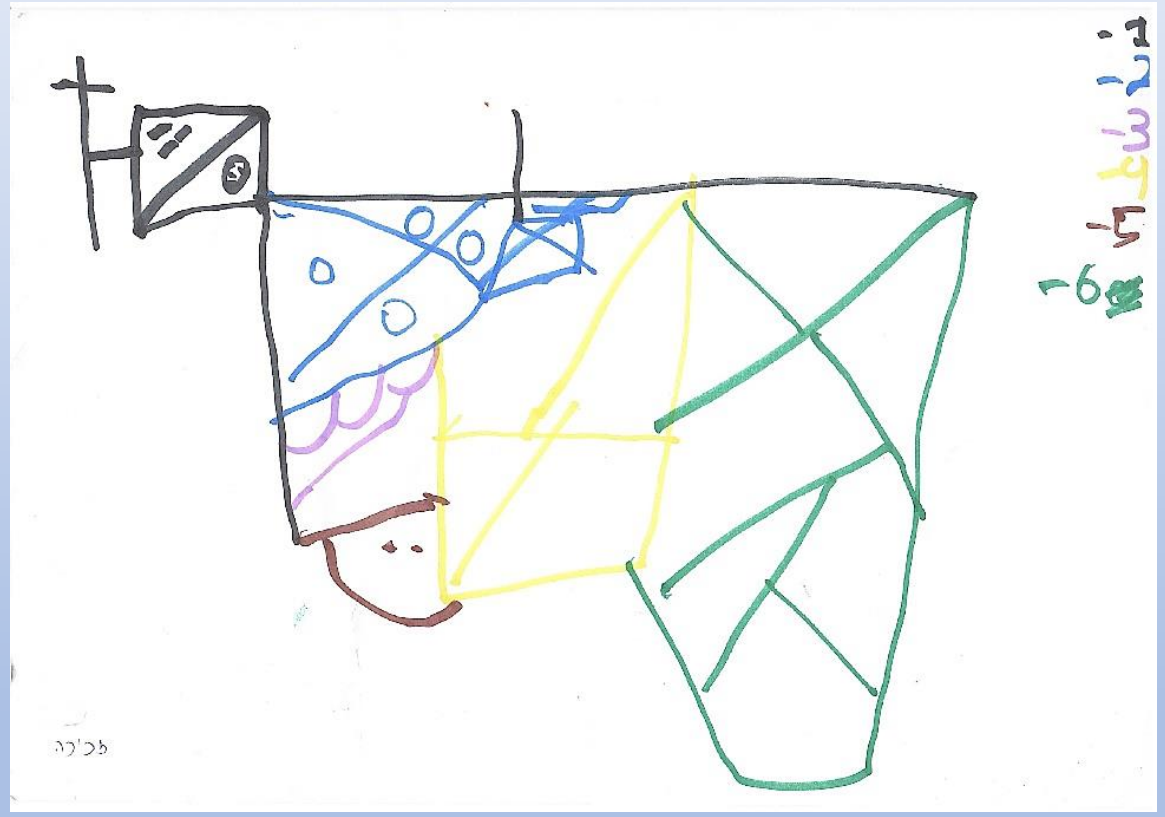
Two pieces of information, two parts of a picture that are next to each other or two events that occurred one after the other – the learner will not connect cognitively to each other all the above.

The fact that a learner acts with episodic grasp of reality in a certain context means that she was very passive in her gathering and processing information (input and elaboration phases)

The learner will probably have problems with causal thinking

Analyze the following copy and memory of the Complex Figure

copy



memory

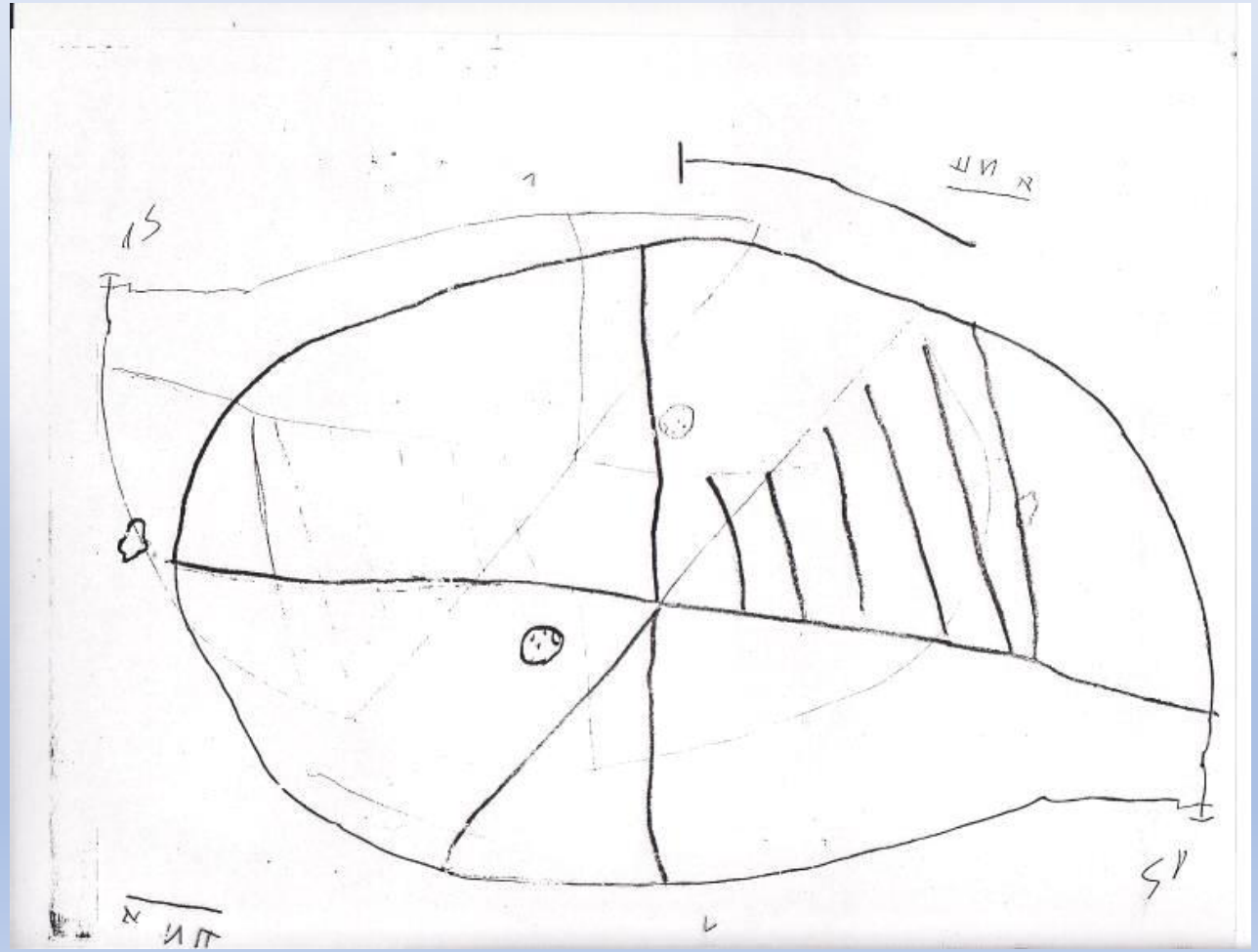
Narrowness of the Mental Field

The learner sees the Complex Figure in stripes. One stripe after the other. The stripes are connected to each other. There is no view of the shape as a whole and of its ingredients that are spread beyond the specific stripes.

"This is illustrated figuratively by the "short blanket" phenomenon in which one uncovers one's legs by covering one's head and vice versa..."

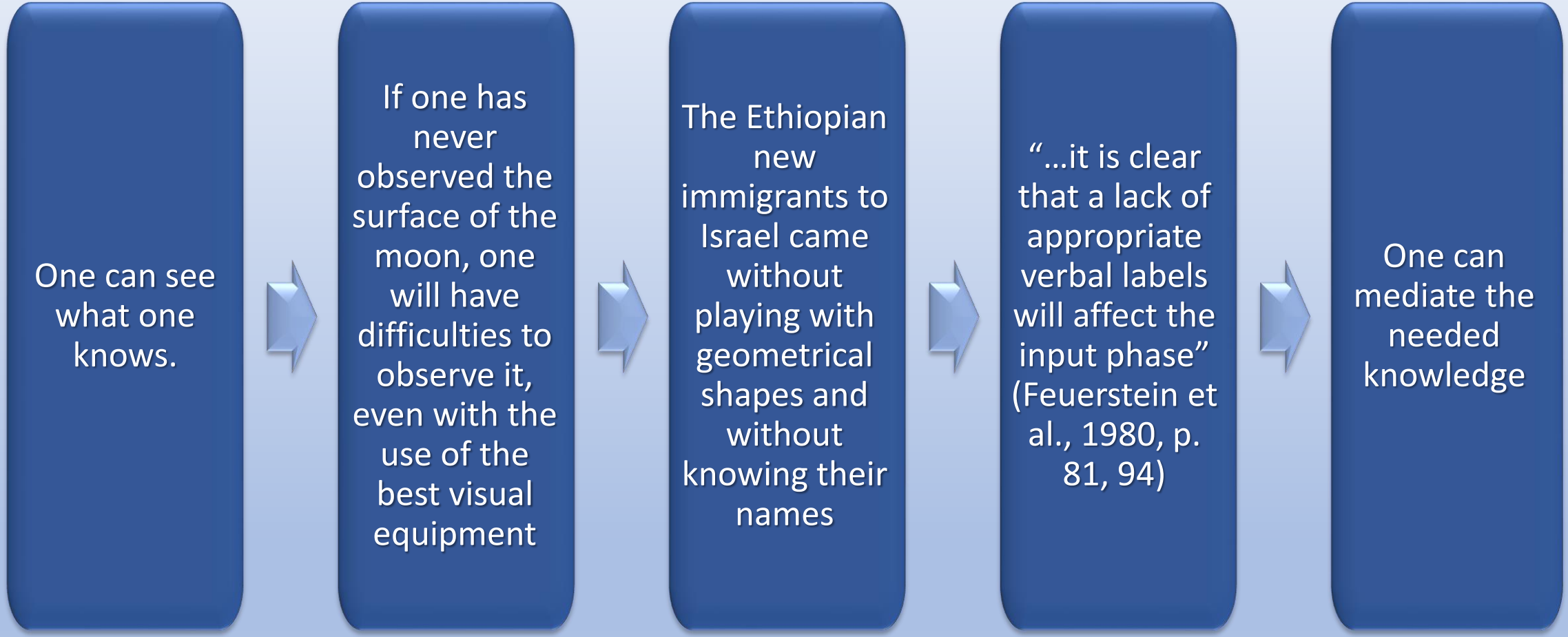
"...It seems to be linked to the passive attitude toward his own self... It occurs to him and not by him..." (Feuerstein et al., 1980, p. 93, 94)

How can you explain this copy of Rey's complex figure by a 13 year old student who learnt in a regular class?



A village in Ethiopia – Do you see geometrical shapes?

Lack of Verbal Skills



The Feuerstein revolution – Focusing on the human being

Belief in the ability of human beings to change their cognitive abilities

Mediating cognitive strategies and awareness

Listening to the place of the learners in real time

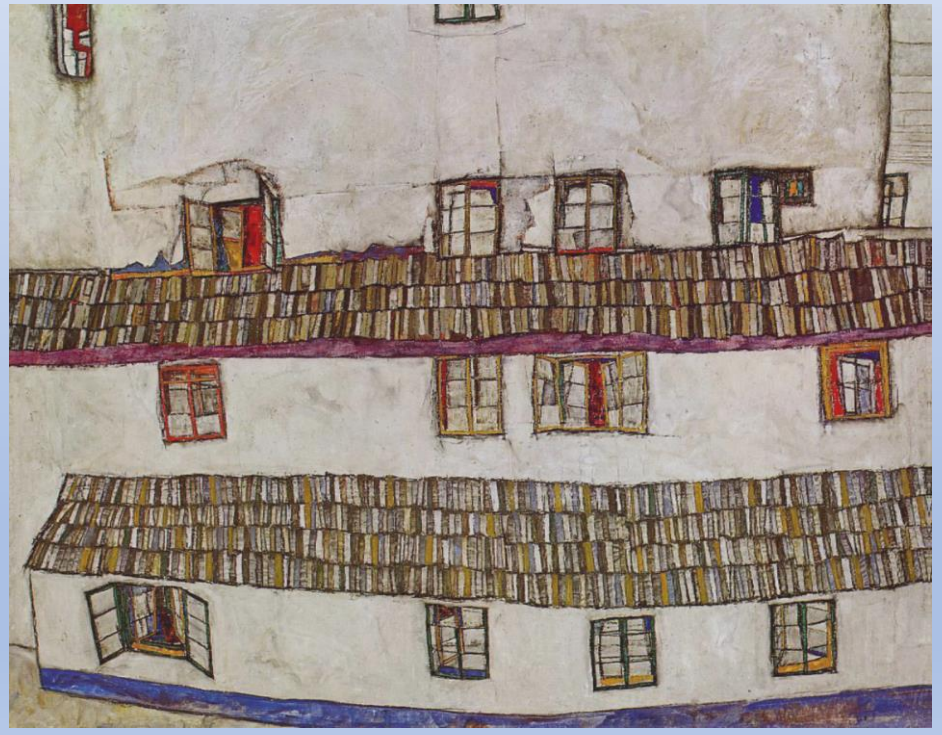
The Democratic principle: one can teach every human being

- The individual I am educating is modifiable
- I am capable of enabling the individual to modify
- Human beings are modifiable

Can one focus on the human being while teaching content?

Attentive Teaching

Egon Schiele – House wall (Window wall) - 1914



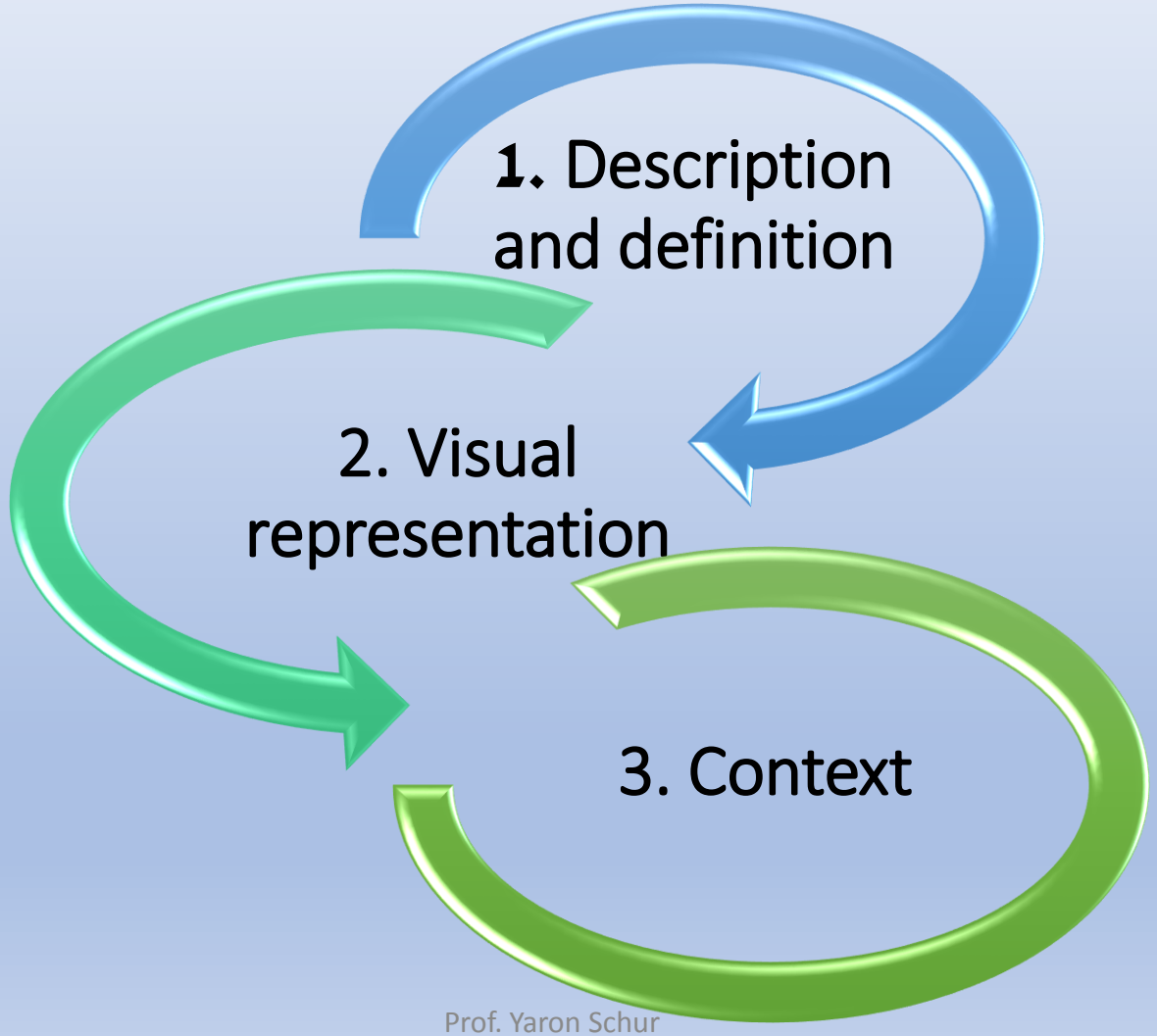
A new Book: Schur (2019)

The Art of Attentive Teaching

Teaching a human being

- Listening to the wider place of the learner in the classroom. She activates her senses and involves her knowledge and cognitive and emotional processes. One has to relate to all of them in order to teach her.
- Each learner has her own learning path, starts from a unique place and ends in another unique place.

What is Understanding? (Bloom, 2000)



Teaching in two levels of understanding

1. **Dynamic Learning -**

Teaching for understanding connected to the senses, to specific environments

1. **Thinking Journey (TJ) –**

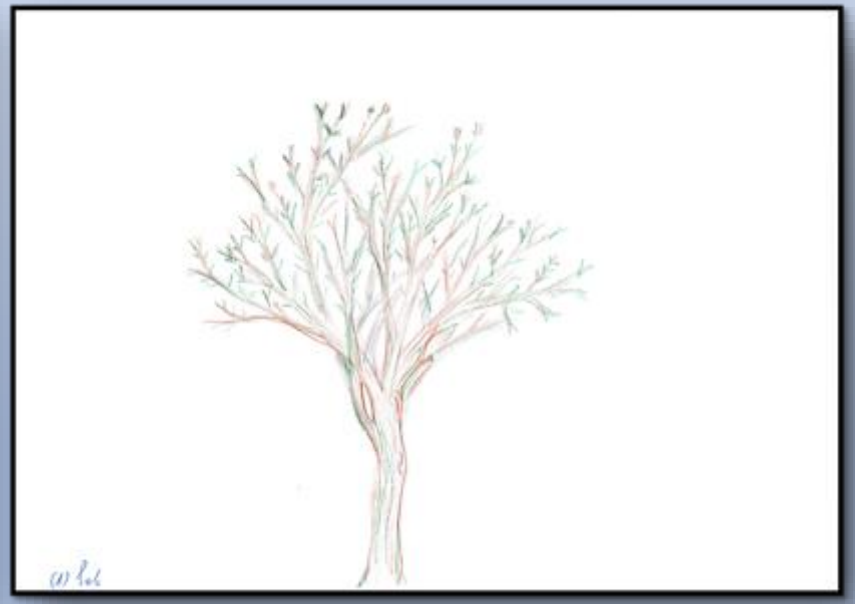
Teaching for theoretical understanding, disconnected from the known environment

Attentive Teaching - From Thinking to Understanding

Seeing the world differently

Comparison between the way a child and a grown – up saw a tree

child



grown – up

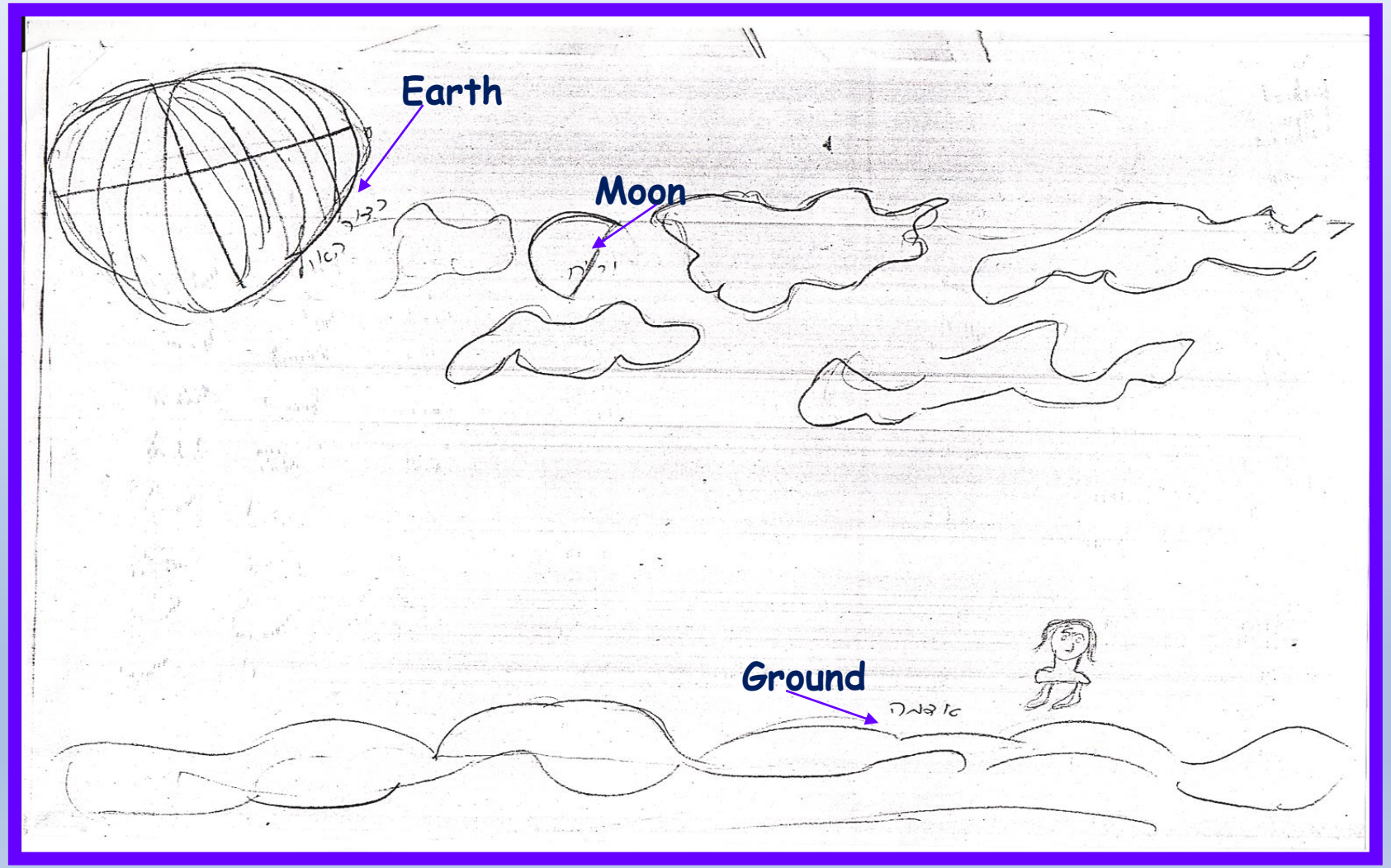
Adults see forms and children colors

- In many instances one could analyze drawings of adults and children and pay attention to the fact that adults see mainly forms and children see mainly colors. Forms relate to the analytical way the adults observe the world.

- Children are usually more sensitive to disorders and pains around them, like drawing the broken branches above.

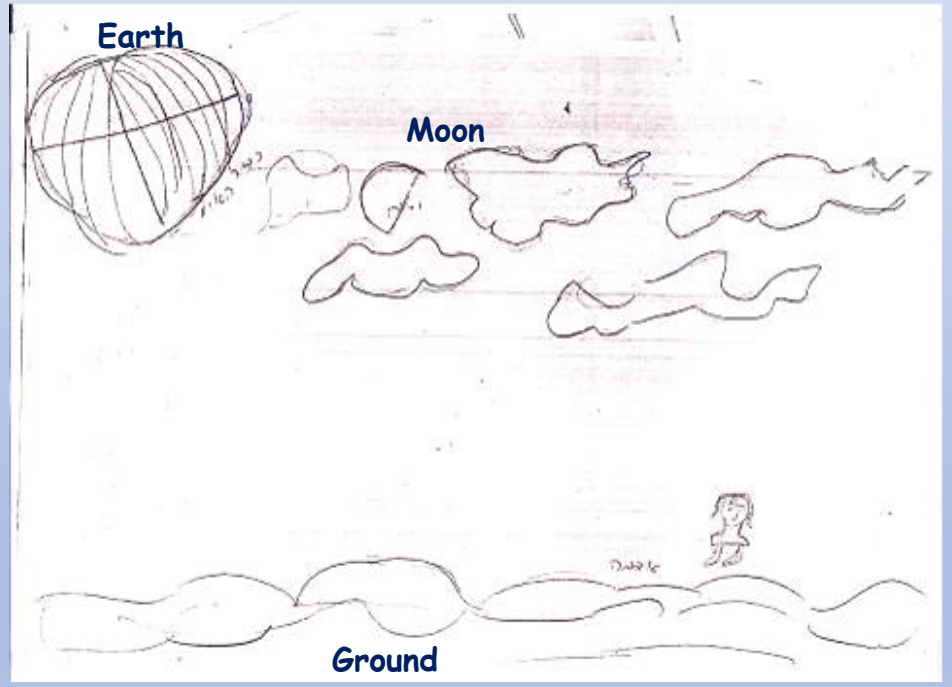
Knowledge can be painful

What is special about the drawing?



Three drawings of the Earth

- During the two interviews with Tami (a student of Ethiopian origin), she drew three drawings of the Earth, that showed her perception of it.
- When she was asked to draw the Earth, she drew the following:



The Earth in the sky

Tami drew the Earth in the sky, near the moon and above the clouds. She claimed she had never seen the Earth, never stood on it, and never met people who lived there.

Defending from knowledge

What does it mean “to put the Earth in the sky”?

Tami felt the need to defend herself from the knowledge, taught in the Geography class.

One can see that she knew the scientific information about the Earth. She drew longitudes and a latitude (maybe the equator), the Earth as a sphere, and she knew about the degrees noting the latitudes.

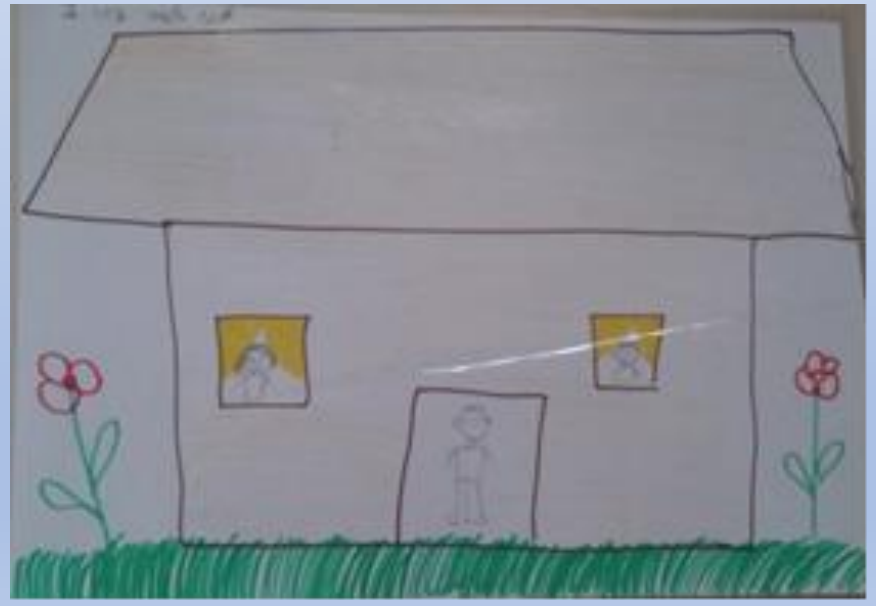
But she put all the information away from her, as far as she could, because she could not connect to the Earth.

Dynamic Learning – A house

The learnt topic can evoke unexpected reactions

Model of a house

child



Kindergarten teacher

The teacher and the learner did not listen to each other:

The house of my dreams

child

Kindergarten teacher

The 5 years old child saw a house on fire and the teacher saw an ideal house

The perceptions did not change even after showing the initial drawings and talking to each other

The basic points of view stayed intact

Teaching heterogeneous classes

Taking into account **the gap between teaching and learning in the classroom:**

The teacher has to be **attentive to the place of the learners** along the whole process:

The design of teaching for understanding **should take into account the real learning processes** of students of all ages and academic levels

Learning is much longer and different from the planned teaching

Learning itinerary is unexpected

The challenge of the heterogeneous class

The classes are becoming more and more heterogeneous

Every learner learns in her unique way

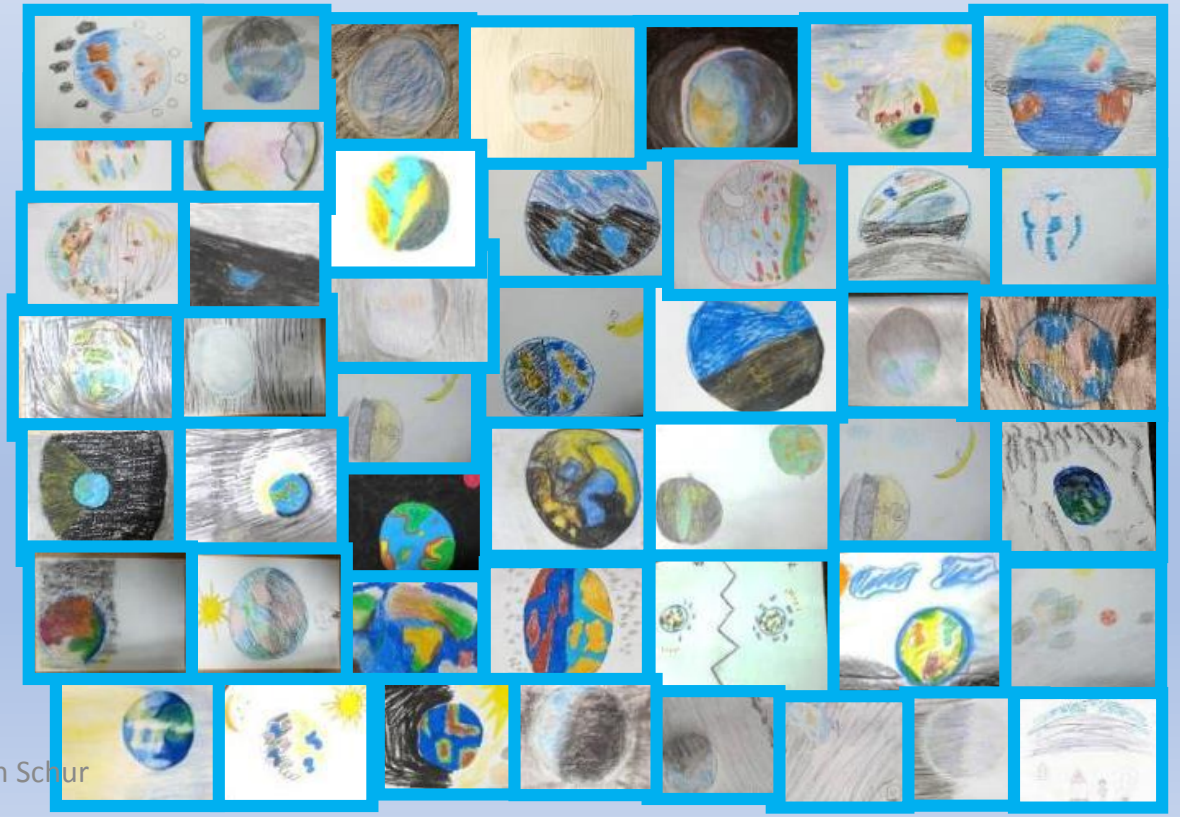
How can we teach a class with so many voices?

There is a need to be able to have a new way of communication with the students in the classroom in order to be able to teach them in a way that will relate to their unique worlds

The use of drawings in subject matter teaching

The use of drawings enables to open up a window to the inner worlds of learners enabling them to express a broad understanding of concepts and uncertainty processes related to the learning process.

Teaching each student from her unique place and learning process



Attentive Teaching

Deals with improving classroom communication

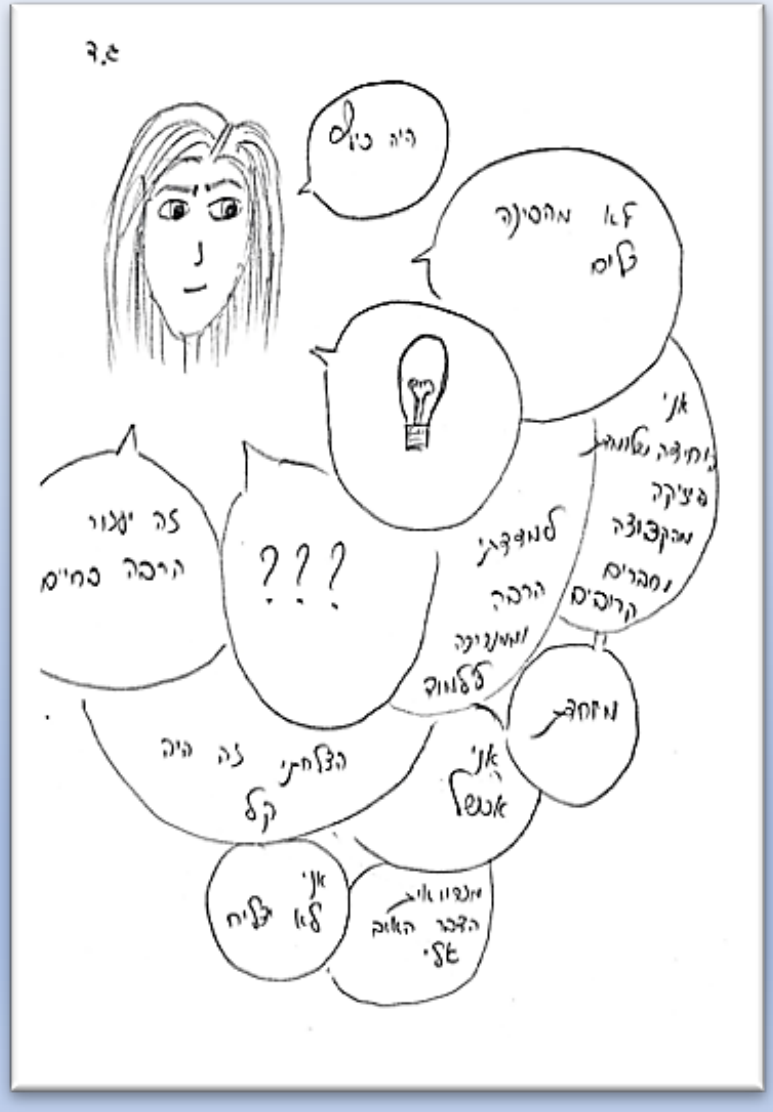
Enables an intensive discourse on the way to understanding

There are hundreds of works and examples of attentive teaching in school classes, kindergartens, academic courses, special and regular education

Dynamic Learning of the concept of refraction

Methodology

The qualitative study examined the conceptual understanding process of 5 students who learnt in a class of 14 students in 10th grade who studied the topic of refraction. The students experienced four creative mediated interactions in the classroom that created Thinking Journey and were interviewed in the process of their learning.



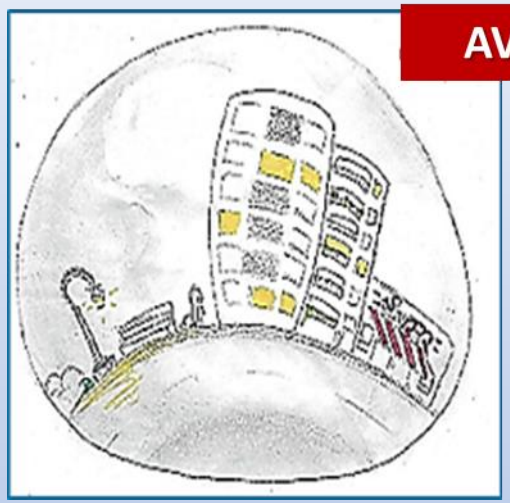
Initial Assignment

Imagine that suddenly you became very small, even smaller than a dot on a piece of paper. You are situated inside a drop of water. How does the world around you is seen to you, now?

Draw it and explain your answer in details.

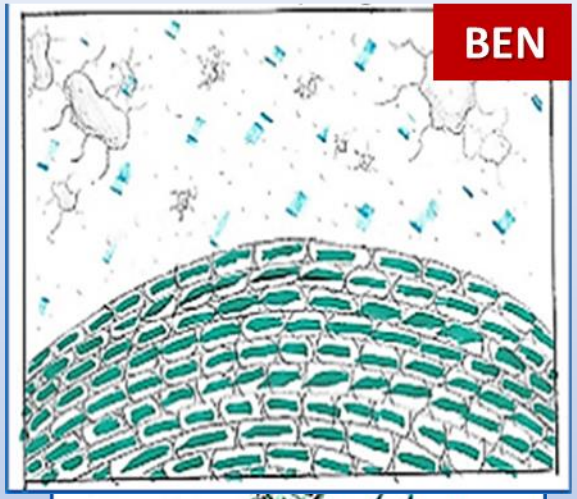
Initial Observations

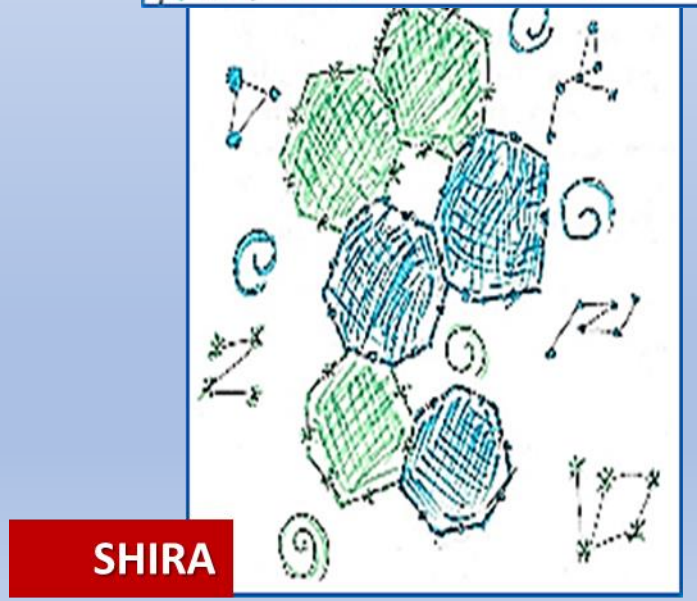
Students' drawings: Big and distorted environments



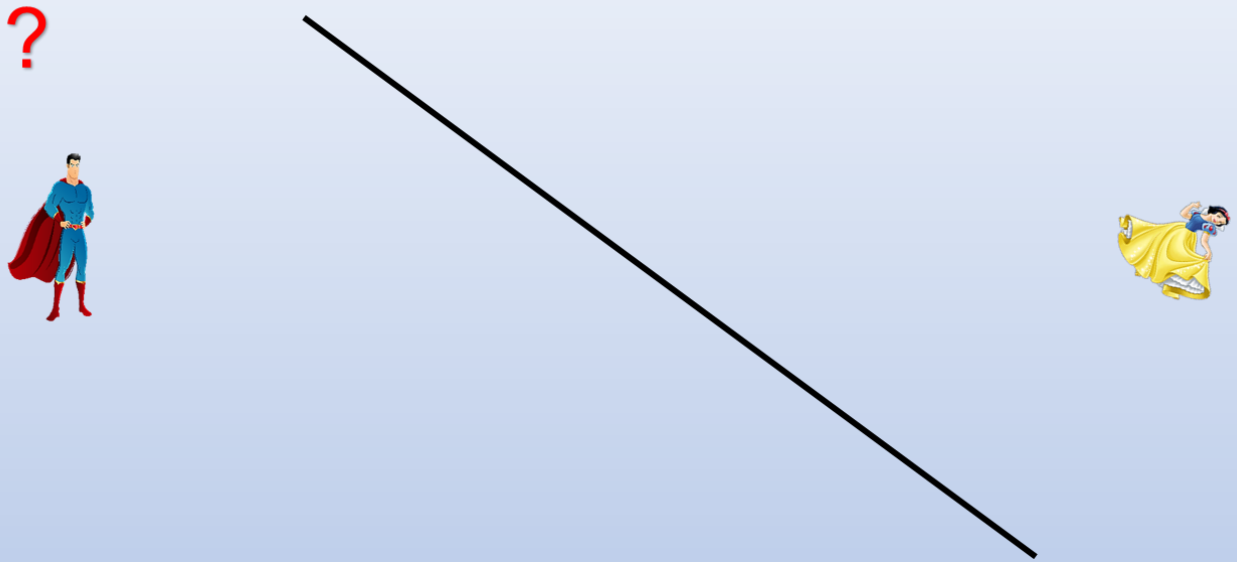
Students' drawings: Nearest Objects

Students' drawings: very small objects

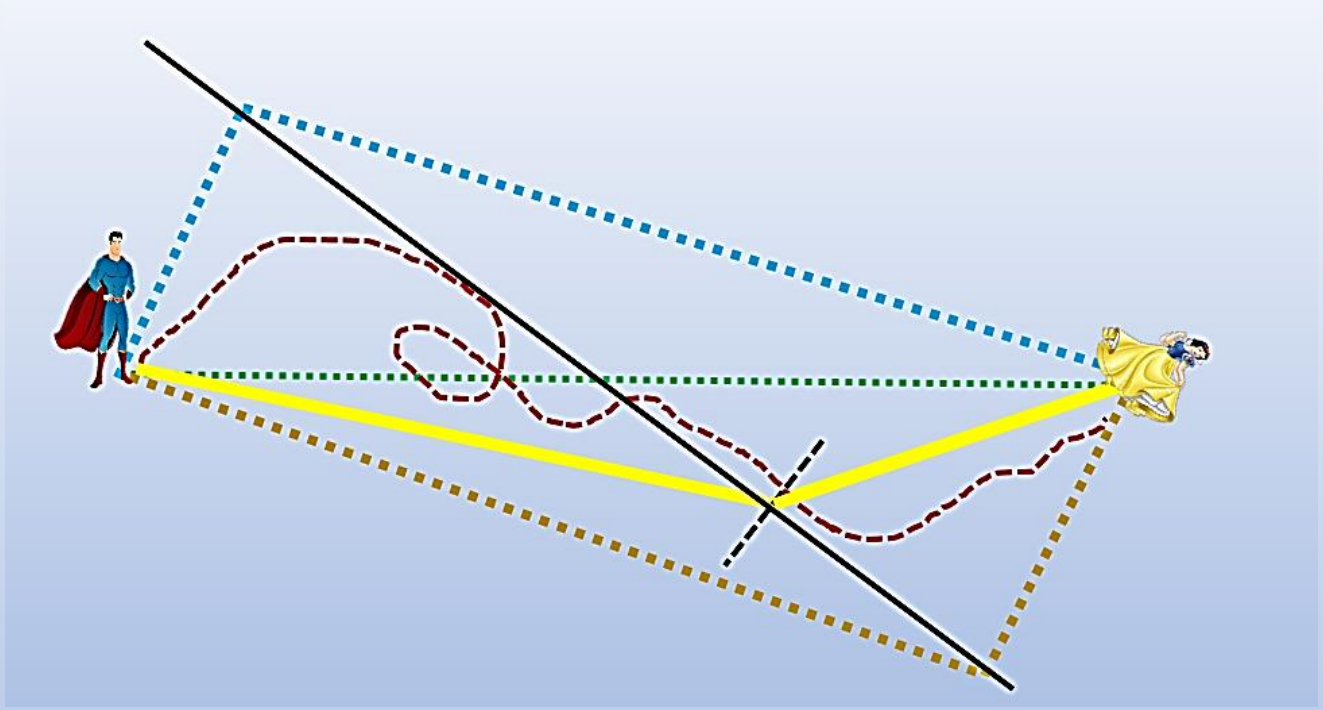




2nd mediated interaction

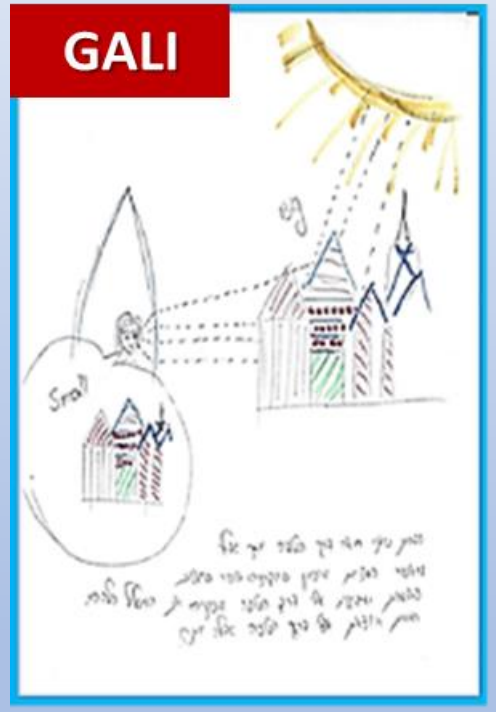


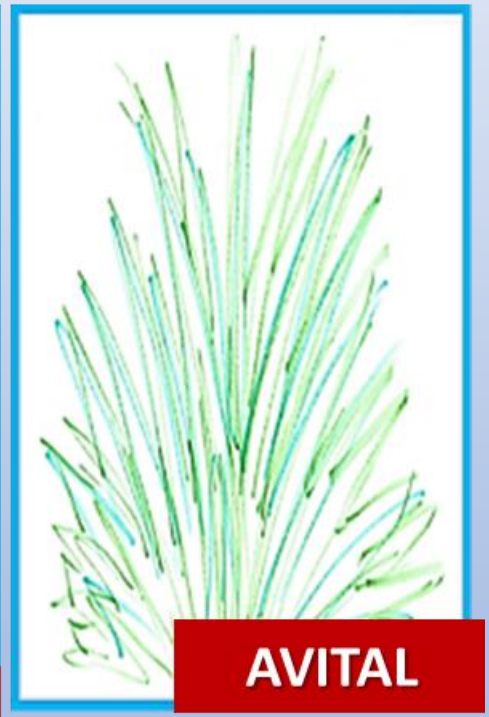
Imagine you are the light. You can move really fast. But you can think even faster. In this respect you are better than Superman. You know that your velocity in the water is slower than on the beach. Draw the itinerary, that will enable you save the drowning beauty



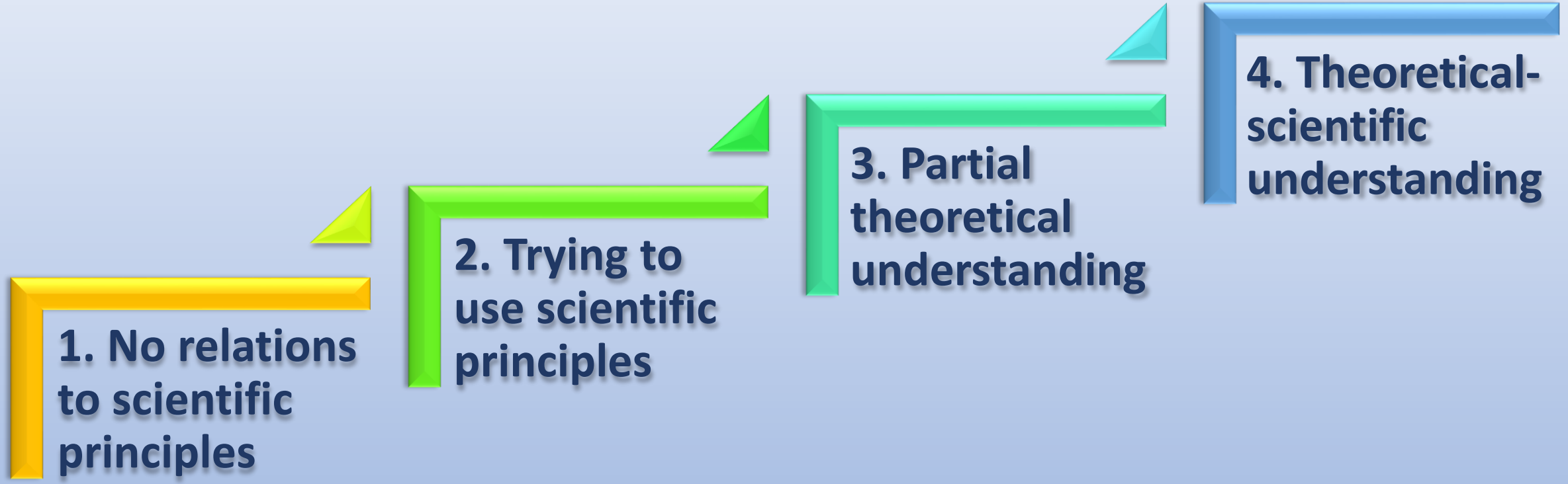
Different solutions of students:
What is the best itinerary for the best integration of the velocities on the beach and water?
The line should be broken!!!

Mature Observations.
View from a drop of water – after learning

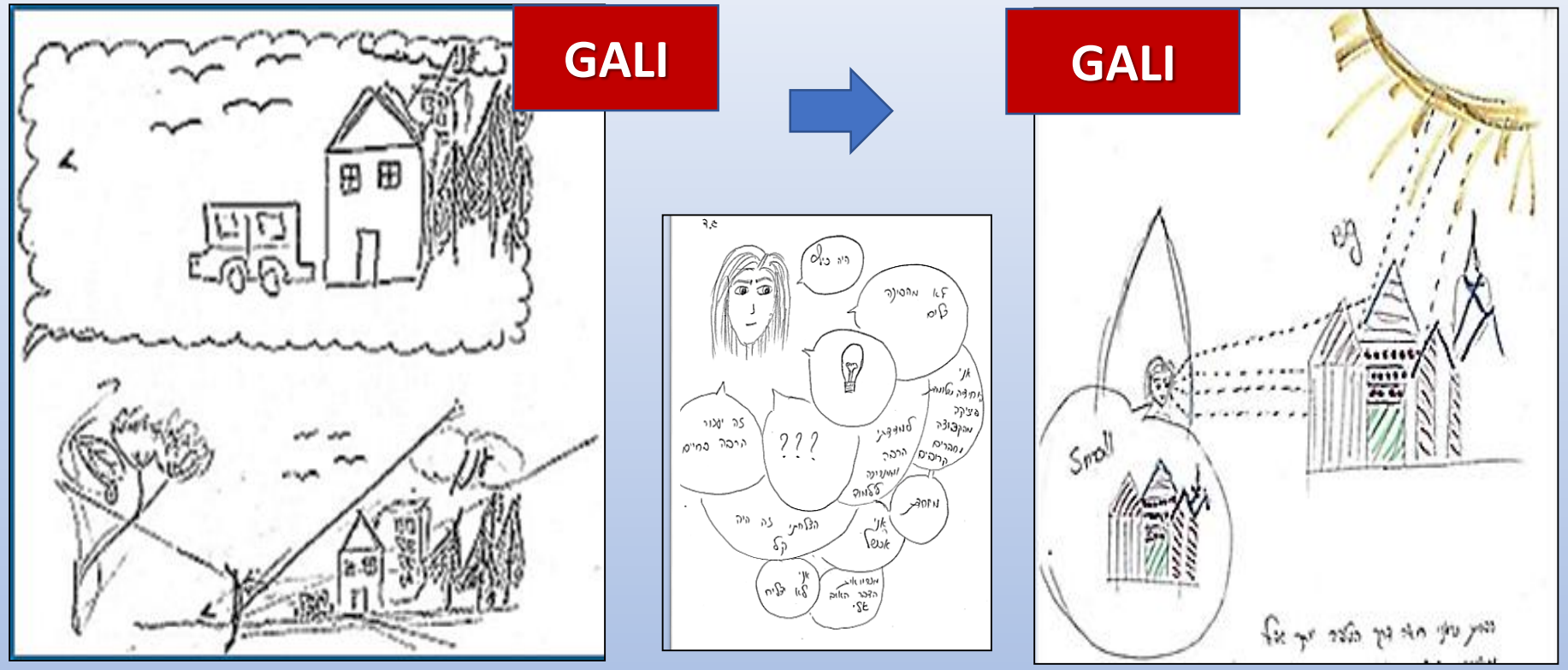




Analysis of levels of understanding

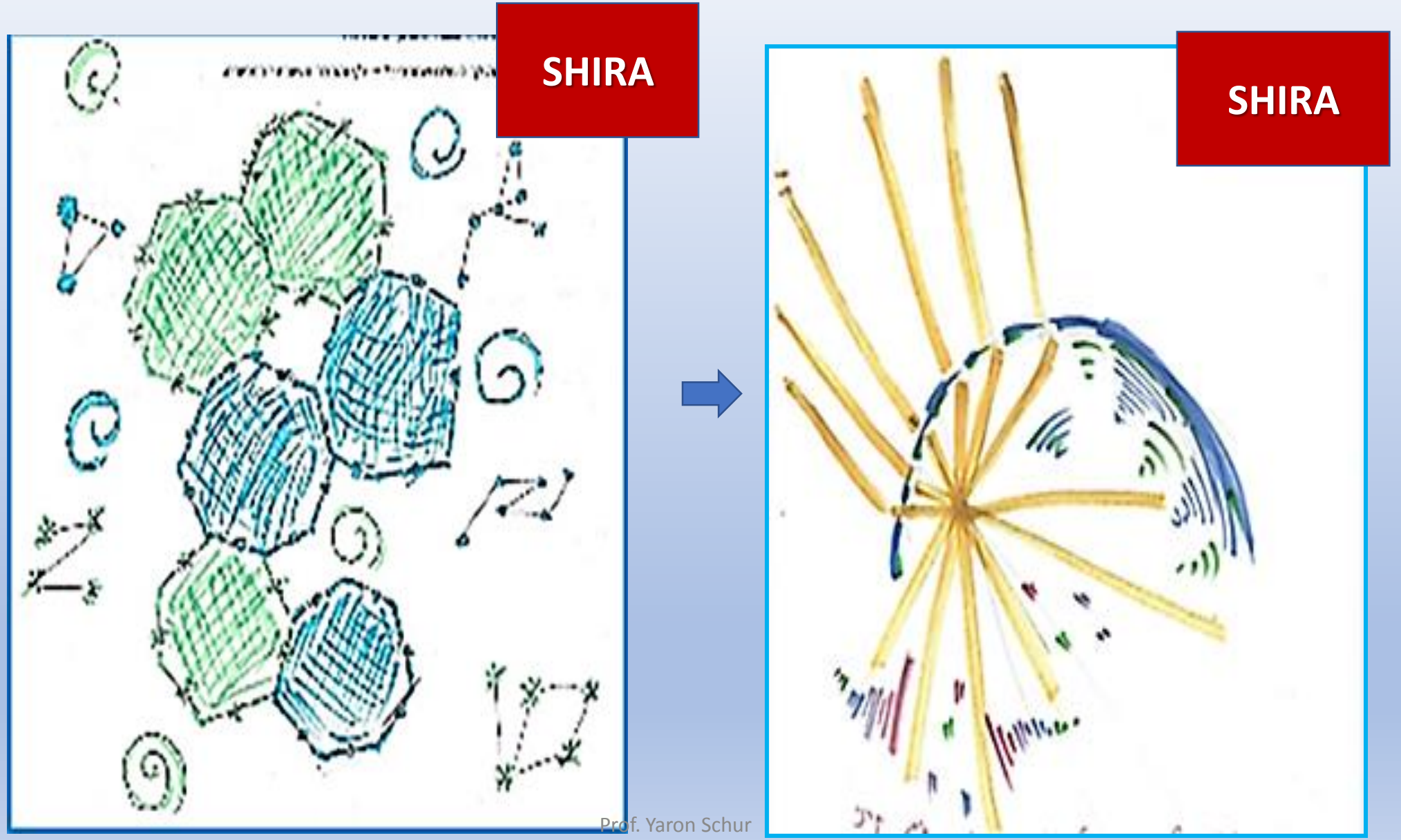


Theoretical-scientific understanding



From general view to expressing the processes of being able to see an object through its lighting, reflection and refraction
Putting question marks, feelings of failures and uncertainty, and then a bulb symbolizes a clear view of the answer

Theoretical-scientific understanding



Trying to use scientific principles

CHEN

CHEN

There are initial relations to scientific principles.
Only in the last minute she saw some light through the clouds

The goals of TJ

Enabling students change their conceptual understanding

Connecting between conceptual understanding and observations of relevant environments

Overcoming egocentric understanding of students

Ingredients of TJ

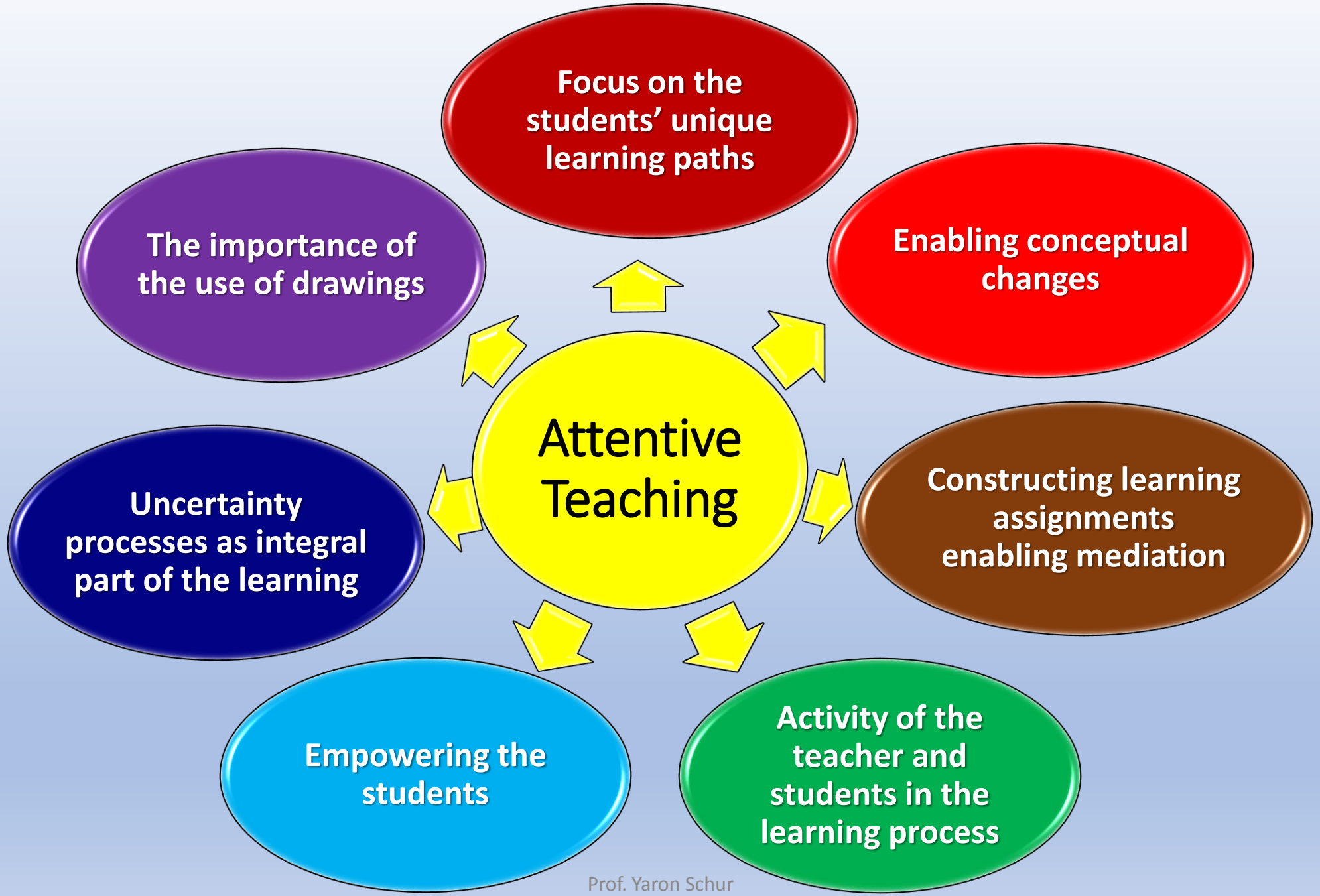
Creating mediated dialogues in the classroom, enabling the students present their understanding

Designing the perspectives, environments and contexts needed for constructing the learnt concept

The use of a variety of teaching languages, emphasizing visual representations

Active participation of both: teacher and students

Empowering the students


Focus on the students' unique learning paths
Enabling conceptual changes
Constructing learning assignments enabling mediation
Activity of the teacher and students in the learning process
Empowering the students
Uncertainty processes as integral part of the learning
The importance of the use of drawings
Attentive Teaching

Dynamic Learning of Earthquake

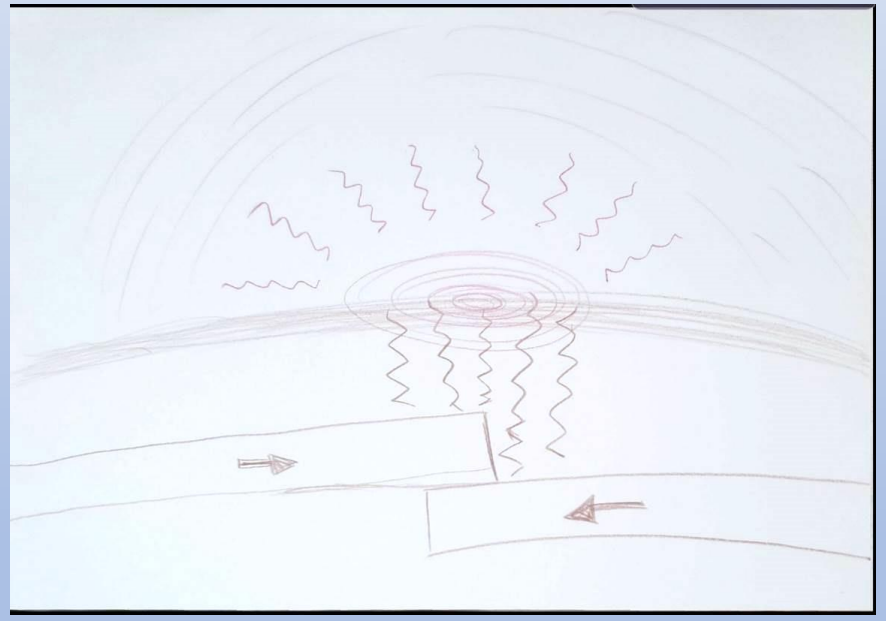
Earthquake

Student 1

mediator

Earthquake

Student 2



Mediator - drawing with student 2

Earthquake – an Imaginary Story

Student 1

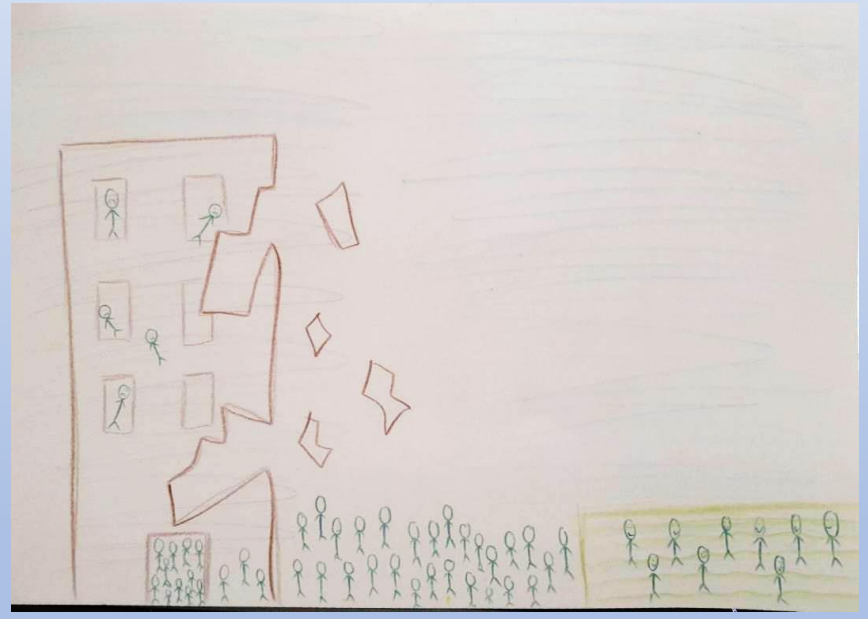
Student 2

Earthquake –
The concept at the end of the learning process

Student 1

Student 2

Earthquake – Uncertainty processes (feelings)

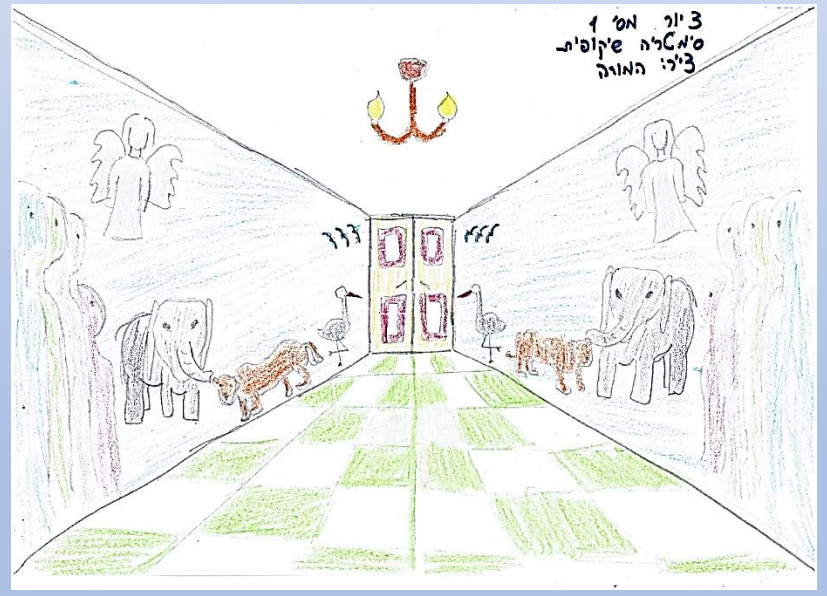


Student 1

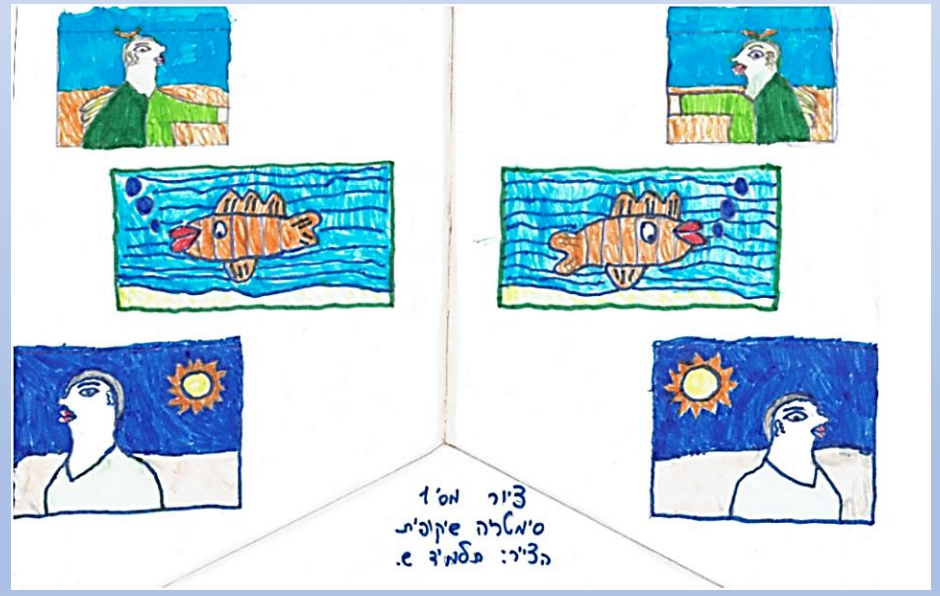
Student 2

Dynamic Learning - Addition

The Reflection symmetry-
initial observations



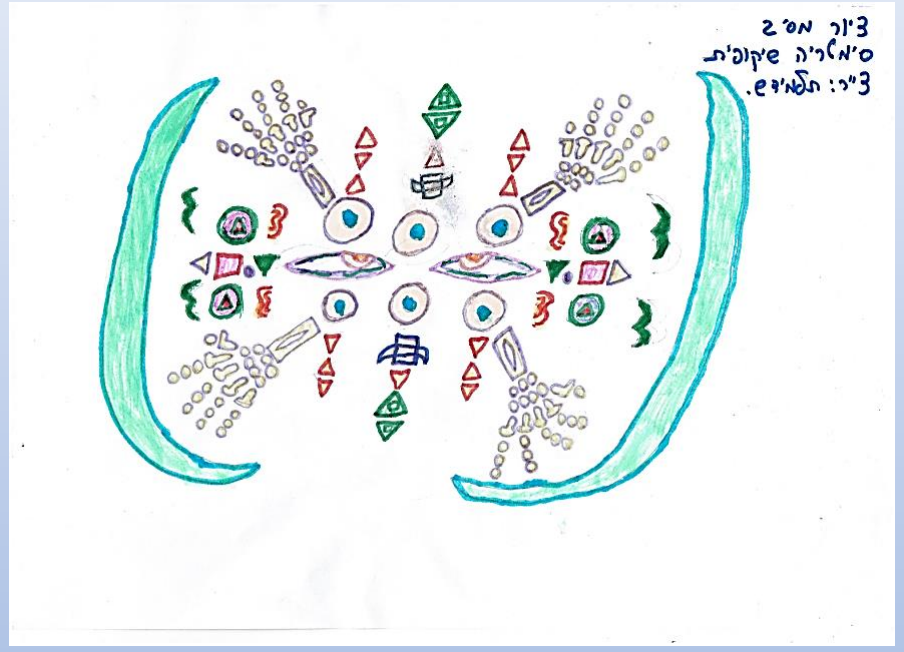
teacher



Student

Mature observations

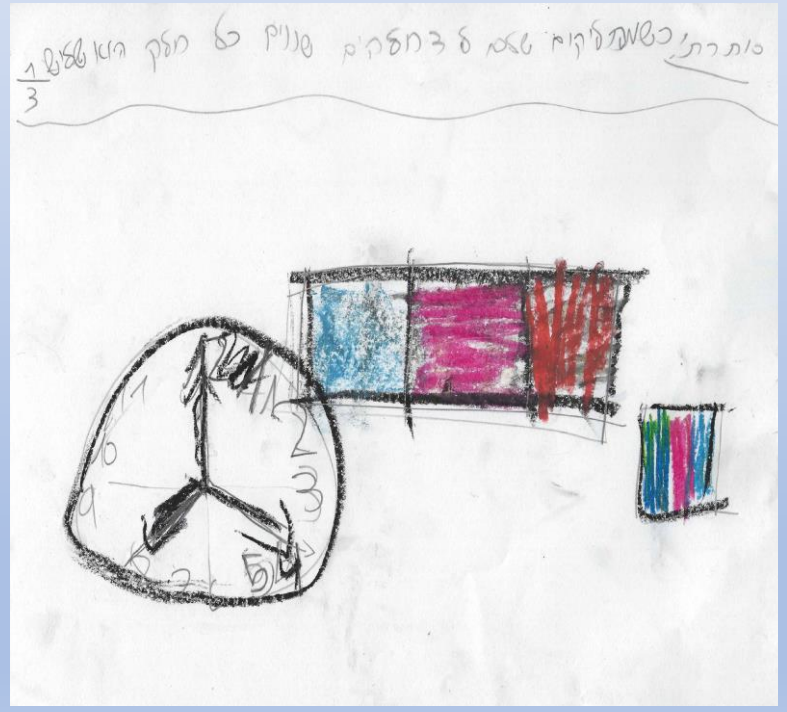
teacher



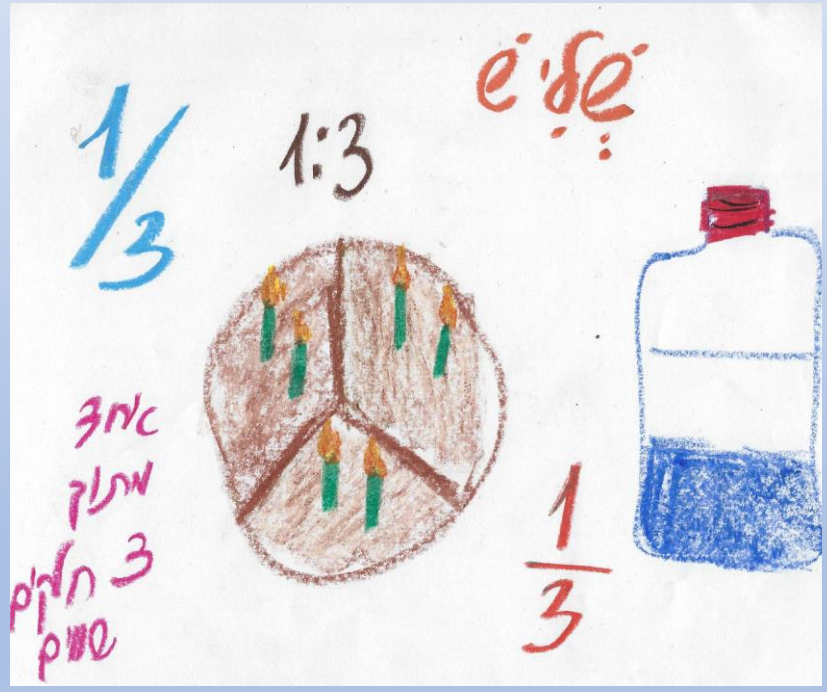
student

Dynamic Learning - Third

Teaching the concept “third”

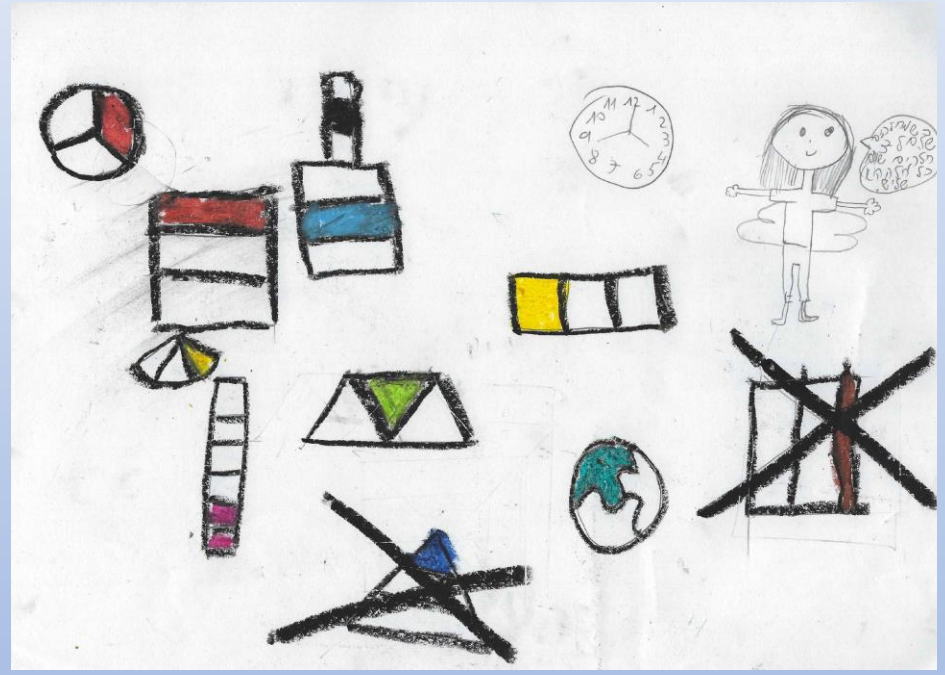


student



teacher

Teaching the concept “third” after creating imaginary stories



student

teacher

A list of some relevant articles

- Schur, Y. & Galili, I. (2009). Thinking Journey: A New Mode of Teaching Science. International Journal of Science and Mathematics Education. 7, 627-646
- Schur, Y. (2015). Thinking Journeys in the Classroom – The Power of Uncertainty and Mediation. Professional Development Today.
- Stein, H., Galili, I. & Schur, Y. (2014). Teaching A New Conceptual Framework of Weight and Gravitation in Middle School. *Journal of Research in Science Teaching (JRST).* DOI: 10.1002/tea.21238


Thank you!