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MULTISENSORY PERCEPTION AND MULTIMODAL COMMUNICATION IN PRIMARY EDUCATION. EXPLORING THE AESTHETIC EXPERIENCE AND WAYS OF COMMUNICATION THROUGH THE 'BOX OF SENSES'

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Abstract:
This study investigates the ways that children feel free to express themselves and communicate with others through their aesthetic development. Multisensory perception helps children to discover their senses and multimodal expression gives them ways and tools to communicate their emotions and ideas, in the way that they want or that they are able to. 'Box of Senses' is a collection of objects that each child makes on its own and through it, it has the opportunity to communicate the way he feels the world, within the community to which he belongs. Objects of everyday life reveal that sensory perception can recall memories, ideas, and emotions. But how do our senses interact with linguistic communication? What color is a word and what does a picture taste like? How do the image and writing work are combined together to describe the senses and ultimately communicate one's experience? Can all these distinct fragments of our everyday sensory experience be narrated by a haiku poem?

Keywords: multisensory perception, multimodal communication, playful learning, research action, Haiku poetry

1. Introduction

Being able to communicate in many ways is something that seems very simple in everyday life but does it apply to school life? This study will explore the ways, in which, a child can communicate with himself and with others. The theoretical framework will investigate the properties and capabilities of sensory recruitment and the multidimensional character of multimodal expression. Research questions investigated

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include how children perceive the environment as an aesthetic experience, freedom of expression, openness in the cultivation of skills, and also how they accept each other's different and distinct personalities.

2. Literature review

2.1 The sensory learning of the world

Maria Venieri (2013:15) provides a philosophical approach to sensory perception, *"perception is the way in which we come in contact with the world through our senses"*. Rudolf Arnheim (2007:119) argues that perception cannot be limited to what the eyes register, but that perception includes mental imagery and its relation to direct sensory observation. Giolanda Demou (2011:17) says that the visual system provides the greatest amount of information from the environment and is overwhelmed by impressions. However, only those stimuli that are important to the observer and have some significance for him/her are taken into account, while the rest are discarded.

In much of what we observe and react to with our eyes and ears, with our sense of touch and that of our muscles, consciousness is not involved at all or is so little involved that we often cannot remember whether we saw our face when we combed our hair in the morning or whether we felt the pressure of the chair when we sat down. Sensory experience is therefore not necessarily conscious (Arnheim, 2007:144-5). Some philosophers have held that there must be 'something' that mediates between the observer and the objects, 'something' mental, non-physical entities, so-called sensory data. Thus, a theory of perception was developed that argues for the existence of mental entities as direct objects of perception (Venieri, 2013:18). Perception is thought of as the interpretative process of aesthetic experience, which is the process by which, information coming from the environment are interpreted to form objects, events, pictures, sounds, sentences, and so on (Venieri, 2013:145). Each one of the senses is a system that converts information from the external world into a neural activity. These messages from the senses are called 'sensations' (Vosniadou, 2002:149) and they are defined as the medium through which we feel (Seremetaki, 2017:37).

Humans have the gift of perceiving objects and spaces with their senses. For example, they experience sound with a sense of vibration and vision of movement with hearing (Lupton & Lipps, 2018). Touch or stereo cognitive sense (Schirrmacher, 2014) is the first sense we acquire, our first language. Jean Ayres (2005) classifies touch as the primary sense and ranks the skin as the basic and essential sensory organ for survival (Demou, 2011:13). The brain and skin are closely linked as they are the first two organs to develop in the embryo from the same embryonic layer, the outer skin (Lioliopoulos, 2004:112). Asley Montagu (1986) considers the skin to be the oldest and most sensitive of the human organs, it is the first means of communication and the most effective protector, "*touch is the parent of the eyes, ears, nose, and mouth. It is the sense that is differentiated among the others"* (Montagu, 1986:3). Thanasis Lioliopoulos (2004:126) says that "*children should be encouraged to process objects in the environment with their hands and interact with them*

because with tactile stimuli it is as if the outside world comes into direct contact with the outer layer of the brain".

Unconsciously, touch tells us whether to trust, to turn away, or to embrace. Touch is social (Lupton, Jasper & Wagner, 2018), and as our world becomes digital and remote, we increasingly crave the feeling of meaningful contact, embracing the positive emotions that a chance encounter offers in a touch or a hug (Mau, 2018). Touch is multi-layered, as evidenced by our contact with the properties of materials, for example, the confusing and varied impressions of temperature, texture, pressure, and resistance offered by a piece of wood or a drop of silicone (Lupton, Jasper & Wagner, 2018). Ellen Lupton and Andria Lipps (2018) argue that objects acquire meaning and value for the individual through an embodied experience. The sensory experience of the body is described when our hands measure the weight and length of the object when our skin registers the temperature and softness of the material, and when our fingers navigate to the changes of form. Nadia Seremetaki (2017:39) argues that sensations represent internal states that are located in a social material realm outside the body and that the human sense is dispersed over the surface of things as an autonomous attribute that eventually invades the body as a perceptual experience. Touch is a spatial sense, suggesting the properties of proprioception and kinesthesia. Proprioception is the brain's ability to recognize where our body is located in space helping us to feel and locate individual body parts (Lupton, Jasper & Wagner, 2018).

Environmental psychologist James Gibson (1966:132) tells us that awareness of our bodily skeleton creates a fleeting geometric shape of our position in space, *"a fragile constellation of points"*, calling this awareness *"subjective skeletal space"*.

Regarding olfactory perception, Demou (2011:24) argues that it cannot meet objective criteria as it connects with heightened emotional factors. An olfactory stimulus can make a person recall memories and past experiences. While Lioliopoulos (2004:122) believes that smells stimulate learning and facilitate the retention of knowledge because olfactory memories are usually long-lasting. Juhani Pallasmaa (2022:86) reports that it takes only eight molecules of a substance to activate an odor stimulus in a nerve terminal and that we can detect more than 10.000 different odors. He goes on to say that a particular smell can make us remember a forgotten image and lure us into a vivid reverie.

According to all of the above, all the senses function as a single system (Demou, 2011). Nevertheless, an involuntary connection between the senses may also occur. The experience of one sense that causes another to respond is called synesthesia (Mau, 2018). For example, color can change what we hear, and sound can transform what we see. Synesthesia is i.e., the overlapping or mixing of the senses (seeing sounds or hearing colors) and is usually considered a peculiar, romantic, or even pathological experience that requires special analysis. Senses may overlap and talk to each other (Lupton & Lipps, 2018). Formally synesthesia is considered a rare condition, but informally the senses activate and enhance the other senses in most people.

A section dedicated to the significant literature resources, consulted or employed, that contributed to the study. It surveys scholarly articles, books, and other sources (e.g.

dissertations, conference proceedings) relevant to a particular issue, area of research, or theory, providing a description, summary, and critical evaluation of each work. The purpose is to offer an overview of significant literature published on a specific topic.

2.2 Children's development through sensory perception

Triliva Sofia and Anagnostopoulou Tania (2008: 59) say that *"children learn, develop and try to understand the world through their senses"*. Kent Bloomer and Charles Moore (1977: 44) argue that the image of the body is essentially shaped from the beginning of our life, with tactile and orientation experiences, while the visual images are developed later and their meaning depends on primary experiences acquired through the touch. Apostolos Maguliotis (2002) says that childhood brings a creative mood that all elements of the environment are integrated through observation and experience, in the 'being' of a child. Small children are sensorial rude.

According to Piaget (1971), children know the world through their senses and actions. Small children mobilize themselves; they are curious explorers looking forward to learning about themselves, others, and the world, children explore with all their senses and ask endless questions (Schirrmacher, 1995:16-18). Danko-McGhee (2006) argues that young children can have aesthetics. As young children grow up, they learn to exercise their senses by observing lines, textures, shapes, colors, and designs found in their environment. Through visual, acoustic, kinesthetic, and emotional perception, the children actively interact with the physical or social environment and increase their aesthetic consciousness (Chou and Lee, 2016). Senkel believes that maturity is a biological process, while development through perceptive functions expands the cognitive, kinetic, and linguistic abilities as well as the abilities of self-knowledge and the environment (Dimou, 2011: 2). Therefore, cognitive development presupposes a process of interaction with the material and social environment. Schirrmacher (2002: 168) notes that children not only feel pleasure looking and smelling at a flower but also reinforce the notion of 'what is a flower'.

A section intended to contain a detailed description of all the methods, materials, collaborators, and participants in the study. The protocols used for data acquisition, techniques and procedures, investigated parameters, methods of measurements and apparatus should be described in sufficient detail to allow other scientists to understand, analyze, and compare the results. The study subjects and participants should be described in terms of number, age, and sex. The statistical methods should be described in detail to enable verification of the reported results. This section could contain a separate sub-section that comprises the explanation of the abbreviated terms used in the study.

2.3 The need for multimodal expression

The dominance and the exclusiveness of language code, as a means of communication in education is a fact. As a result of this approach, the individual's ability to interpret various concepts using his/her multiple senses has been marginalized (Dillon et al., 2004) as well

as the ability to use multiple ways of representation (Kress, 2000). The theory of multiliteracies emerged from the need to understand and represent modern environments, which are becoming increasingly complex and multimodal (Sotiropoulou-Zorbala, 2020). The accumulation of vast amounts of information, media pluralism, and cultural diversity have brought about significant changes in the communication landscape, making unimodal communication impossible. The conditions of modern life and education suggest the need for a literacy that extends beyond linguistic activity (Leeuwen, 2015).

The concept of multiliteracy is based on the scientific concept of multimodality and assumes that an individual's literacy should not be limited only to the language they can articulate but should include what the mind can comprehend in general (Cope & Kalantzis, 2009). According to Gunther Kress (1997), none of the human senses can function independently of the others, so people perceive their environment multimodally. Multimodal works are works that have multiple 'modes' of communicating a message. Modes have been identified as, for example, speech, writing, image, music, gesture, body movement, and modelling (Kress & Leeuwen, 2000). Sofronis Chatzisavvidis (2011) argues that multimodal texts combine a variety of semiotic modes that intertwine and influence each other. As Sotiropoulou-Zorbala (2020) states, various textual genres emerge, such as: verbal, visual, sound, kinetic, and digital. Understanding the polytropic texts requires a complex decoding process as we are dealing with a set of semantic codes. The reader is initially called upon as a functional user to identify and decode the various semantic resources, such as verbal information, images, drawings, photographs, sound, and at the same time to be able to synthesize and reconstruct them as a coherent unit (Kress & Van Leeuwen, 2010:20-1). The interweaving of more than one semiotic mode for conveying meanings led to the introduction of the term's multimodality and multimodal text, whose proponents are Gunther Kress and Theo Leeuwen.

In accordance with the social semantic approach, students are seen as active participants in the process of reformulation of knowledge and not as passive copiers of pre-installed meanings. Students compose as active formators, drawing from various semantic facilities, different kinds of texts, and different ways during the learning process (Kress, & Leeuwen, 2001).

2.4 Multimodal storytelling

Multimodal storytelling is a modern interdisciplinary tool (Grossos, 2006 · Graikos, 2013) and has the potential to utilize a variety of methodological tools, helping the all-round development of the children, but also for individualized learning according to the abilities and specificities of each child. This way, the learner should be able to make his own decision concerning the chosen semiotic modes that will be used (linguistic, visual, sound, kinesthetic, representational). The theory of multiple intelligences Howard Gardner (2006) develops around the diversity of each individual's nature, highlighting the personal individual elements that tend to be activated by some senses and argues that

each child has a different learning profile with distinct strengths and weaknesses that can be attributed to personal areas of intelligence (Lash, 2004).

As Robert Schirrmacher (2014:15) states, each child can express himself in his own 'way' as long as this environment of 'openness' is cultivated in their daily engagement with the issues they are dealing with. Besides, children's expression must be personal, because each one uniquely approaches art. The skill of producing multimodal texts, is as much as important as in modern society and usually is not taught in schools. However, in recent years modern education provided children with opportunities for both verbal and non-verbal meanings (Kress & Leeuwen, 2001). Sotiropoulou-Zorbala (2020) notes that multimodal communication is important not only because it adds to the individual's disposition more ways to express themselves, but mainly for the positive influence it exerts during the process of meaning-making. According to Arthur Efland (2004), the content of meaning and the way it is expressed are equally important elements that work inseparably together.

3. Research methodology

The research, which is based on the author's thesis, involves a series of action research experimental projects. The following experimental project is the fifth in the series. The method for all the projects in this research is empirical and contains elements and tools of qualitative research. The experimental projects are based on the method of "*Educational research-action*", where the teacher becomes at the same time a researcher "*presupposing the active participation of those involved in the field under investigation*" (Katsarou & Tsafos, 2014).

3.1 Framework

The experiments were carried out in the visual arts laboratory of the same school. The duration of the implementation was two sessions of one hour and a half each (three hours). The group structure for the implementation was formed on individual work and a rolling role play. Project Based Learning (PBL) was applied as the teaching method.

3.2 Participants and ethics

The research was conducted in a mixed group of twenty-five children from seven to twelve years old and permission for their participation has been given by their parents and in collaboration with the ethics committee of the university where the author's doctoral thesis is being conducted.

3.3 Experiment summary

Students create a multisensory collection and then a narrative map describing their objects and senses. After that, they collect the appropriate linguistic elements so they can create a Haiku poem describing their collection.

3.4 Objectives

- Students investigate the material environment through sensory activation and discover that everyday life is a multidimensional perceptual experience that shapes their aesthetics;
- Children discover the symbolic world of materiality and how this helps them to communicate with themselves and with others;
- Children interpret and communicate their aesthetic experience comfortably through different modes of expression.

3.5 Research tools

The research tools that were used in this experimental project include:

- Workshop activities (material collection, visual narrative map, and language imprint in poetic form),
- Informal open discussions,
- Participant observation,
- Researcher's diary.

4. Results

4.1 The development of the project and data collection

Project part 1: Students prepare their collection

Students were invited to prepare their 'Sensory Box' on their own or with the help of their parents. They were asked to collect objects with different textures, smells, shapes, and weights, from different areas of the house, or from a walk-in nature. In a few words, they have to process the objects (whether they are natural or industrial), by feeling, touching, and smelling them in order to include them in their collection.

Project part 2: The contents of the collections

A description of the contents of the boxes (images 1-3) is given, in grouped categories:

- organic elements of nature: pine cones, twigs, branches, leaves, shells, fruits,
- small toys,
- souvenirs,
- various items from around the house such as: sponges, kitchen utensils and condiments,
- a collection of some of the above items.

Figure 1-3: The contents of the collections

Project part 3: Groping game
After the children brought their personal box to the lab, I asked them not to open it and not to reveal its contents to their classmates so that we could have a chance to move on to the game that would follow. A black cloth covered the kid's eyes, while they tried to guess the identity of the object in their hands. As the game progressed students were encouraged to describe the objects with their senses, commenting on their textures, how they smelled, the temperature, the shape, and began to speculate about their origin and make comparisons between them.

Project part 4: Creating a narrative map
Firstly, students were asked to capture the material items in a drawing. Then, I asked them to experience the items again with their feelings and try to describe them with the first word or phrase that came to their mind, whether it could be a picture, a name, a place, a word, or a feeling. However, at this point, when the students were asked to describe in writing their thoughts, ideas, and feelings, they had great difficulty. Eventually, with encouragement, prompting, and the example of automatic writing, the students formed some descriptions of their objects (Figures 4 & 5). Most, however, were stuck to a superficial description of the objects (Figures 6 & 7) except for a small percentage that gave a certain depth, using metaphors and easy expression (Figure 8).

Figures 4 & 5: Students describe their objects in a multisensory way:
'Shell house' & *'A pin that traveled the world on a piece of paper'*

Figures 6 & 7: Narrative maps with descriptions like:
'I am a horse', *'The cocoon'*, *'A strange stone'*, *'A cloud in the sky'*

Figure 8: Narrative maps with descriptions like: *'My holes to breath'*, *'The couple of shells'*, *'The separated couple (referring to the shells)'*, *'The white hole'* (referring to the big stone)

Project part 5: Creation of a haiku poem to accompany the collection

In this final stage of the project, students were asked to collect the most characteristic words from their narrative map and create a haiku poem with them (children were taught haiku poetry as a literary form in a previous workshop with a guest teacher from the school). A small percentage of students worked through this activity mechanically, simply placing some words, but most of them approached this last stage with a playful mode and with an ease of expression (Figures 9-12).

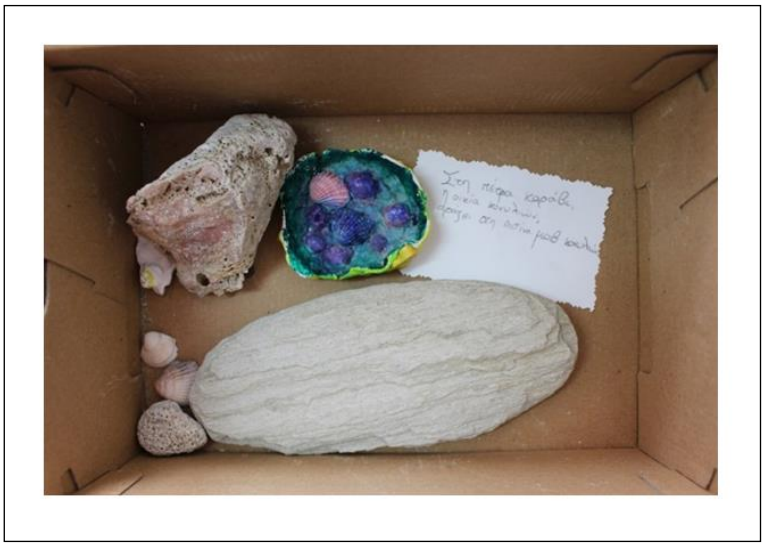

Figure 9: Haiku poem by a 10 years old girl: *"On the stone boat, the intimate shell, hanging in the pool of purple shells"*

Figure 10: Haiku poem by an 8 years old boy: *An old bun in the shop warm"*

Figure 11: Haiku poem by a 7 years old girl:
"I'm a warm coconut and I'm oozing milk from inside"

Figure 12: Haiku poem by a 7 years old boy: *"A feral monument one morning on a hillside thought: Why am I not cut in half?"*

4.2 Interpretation/Analysis

The personal choice through the collection - The multimodal narrative begins with the collection of objects, putting all senses on the alert. The collection represents each student's personal choices and the children's concept of the material world. Each one's sensibilities are different. Other children choose objects according to their senses and others because these objects may mean something to them, i.e., according to their emotions.

Juhani Pallasmaa (2020: 153) argues that the importance of objects in our memorandum processes is the main reason why we want to collect familiar objects around us. These objects strengthen the sphere of memories and ultimately our sense of

self. Few of the objects we have are really necessary for usual purposes; their function is mainly communal and psychological.

Different views of the meaning of 'collection' - It was surprising that some boxes were completely full while others were almost empty. In brief discussions with the students, it became apparent that their collection was complete for them with even three or four tiny items. Tracing the objects to create this multi-sensory collection seemed to be for some students a more detailed process of investigation in which they engaged their senses and emotions while for others it was a more superficial investigation with a quick search. The cooperation of the parents in this project proved to be particularly important and created intimacy and warmth in relationships with the researcher, forming a social learning network. It was particularly evident in some cases where the content of the collections seemed to become the occasion for a walk in nature to trace organic elements.

The students get to know their classmates in a different way - Children were encouraged to bring items out of school and share their personal choices with their classmates, thus showcasing a piece of their personality. They were encouraged to touch and talk about their classmates' objects, communicating in an emotional way. The group connected through each child's personal testimony. Through exposure to themselves and others, students were led to greater self-awareness and empathy.

The practices of multimodality - This project helped each child to express himself, with greater emphasis at a preferred stage. Dissanayake (2002) tells us that multisensory lessons in art, prove to be very useful when a project is taught in an interdisciplinary way, especially in the early years of school. These different stages were:

1) The creation of the collection - Physical interaction with the environment,
2) The design illustration on the narrative map - Design and art perception,
3) The verbal interpretation through ideas and feelings - Linguistic perception,
4) Through poetry - Aesthetic writing.

Language interpretation - The greatest difficulty in this project occurred when the students were asked to record their feelings and inner thoughts in written language. The linguistic interpretation of feelings and the forming of metaphorical concepts were quite difficult, indicating a gap between language, sensory, and visual expression.

The need for visual literacy - Undoubtedly, multimodal interpretation requires the cultivation of visual literacy, in order for the child to be able to "read" the codes of signals produced by visual stimuli and later interpret an aesthetic experience with critical reflection.

According to Kress and Leeuwen (2001), modalities are "grammars of design", that use broad and abstract categories of elements, but provide fairly specific rules for combining them into an infinite number of possible expressions. They are deconstructed and abstract, but at the same time powerful in their use. Young children are fascinated by the relationship between form and meaning, repeatedly experimenting with representations of objects and word graphs, playing with sign sources, and exploring the different manifestations they can give them based on their choices (Gardner, 1980 · Kress, 1997).

The contribution of poetry to the formation of metaphor - Young primary school pupils have a playful relationship with linguistic elements. And even if they not have yet established the appropriate correspondence of words that refers to emotions, situations, and elements of reality, this is still very interesting when working with sensory references. For example, children refer to their narrative maps and haiku poems as: 'The traveling pin' (referring to a toothpick); 'The separated couple' (referring to the shells); 'The white hole' (referring to the big stone); 'A feral monument one morning on a hillside thought: why am I not cut in half?' (haiku poem); (Figures 4-11). All is permitted in the writing and stitching of words that came from the pure feelings of the children, especially when they are encouraged to express themselves freely. Very young children are unaware that their expressions are not very "correct" compared to older children who wish to avoid making expressive errors in oral and written verbal communication. But these special 'wrongs' which finally form the metaphors are very important in expression. The contribution of poetry to metaphor formation, helped children connect perception with linguistic expression. The words seemed as if they were unique elements that had their own substance.

Jarkko Laine (1982:323-4), writes about the role of everyday objects, on his window, as he remembers them, *"I like to watching these things (…) I don't remember their origin (…) But still everything wakes up reminded, real and fictional. Things on the windows become a poem"*. Furthermore, concept metaphors are everywhere in everyday life (Lakoff & Johnson, 1980). The metaphors are diffused not only in language but also in thoughts and deeds. They constitute unusual forms of thought that penetrate everyday language; they can be transformed into shapes of images. These forms constitute mental impressions of our sensory experiences in matters of movements, forms, locations, and so on. They associate experiences with logical abstractions, allowing us not only to recognize patterns in specific physical senses but also to anticipate their effects and draw conclusions (Danesi, 2017:136-42).

Synaesthesia and metaphoric expression - Richard Citowic (2017) argues that internally we are all emotional, but we just don't notice how our senses interact. Synesthesia can be turned into a very useful tool for children to express themselves through free language associations. Using the language outside of grammatical patterns that a child most likely does not yet know, will give them the opportunity within this permissive field of expression, to interpret themselves more communicatively and aesthetically.

Why Haiku poetry? - Many teachers choose to teach haiku because as a poetic form, it has a relative ease of reading and writing for young children, it is short and simple, ideal for children's literature (Reilley, 1998). On the other hand, the strong use of linguistic metaphor (e.g., the smiling hills) in Haiku's verse and also by describing in a few words many more things, help students to get to the central meaning of what they want to say. By removing unnecessary elements, children see and say only the essentials. In this project, the haiku poems seemed to finally bridge the gap of expression that

emerged in the previous stage of the project. Some children were not content with only one haiku poem until one of the kids formed seven poems with great satisfaction.

Interaction with the community - Children played this game not only within the group but also with the children of the rest of the school. During the project process, while the boxes were kept in the lab, the children invited their school friends during break time to play the 'blind eyes' game. They were saying: *"We want the sensory boxes to play with*" and this is how we named the project. In research conducted by Catherine Molenda and Navaz Bhavangri (2009), they stated that students tend to be emotionally involved in multisensory activities that take place in the classroom.

5. Conclusion

In this study we applied through 'research action' the multi-modal method of learning with tools, drawing, text, and language. Sensory perception was the means through which we explored the aesthetic perception of the students and the development of their communication skills. Through language expression, the exploration of material culture, and the exchange of ideas, in a group with interlocutors on every day and personal issues, the children began to connect the aesthetic with real life.

Material culture is everywhere around us, constantly shaping our aesthetics through the interaction with the senses. The 'object' can become the reason for someone to receive stimuli and communicate through them. The collection of things, the 'box of senses' played the role of pause. That is, to stop and observe for a while the environment, interact with it, and then observe others going through their own interactions with the environment and the objects. Pause and vacuum are very useful when we want to feel something with more attention. It is very important for children to self-activate and interact with their environment but to do so, successfully; they must cultivate their perceptive ability and continue to be able to communicate it. The tools of aesthetics, such as drawing and painting, the tools of language such as automatic writing, and the good practices such as the 'collection' method, infused an idea for other ways outside of the typical teaching routine, but not so much outside of real life. We're finally teaching kids how to live real life, connecting school with everyday life. It is a fact that children learn in a typical way of education which is separated from real life thus making them not behave with enthusiasm and manage the environment when they leave school. Bringing the school close to reality is important for the healthy development of children and also a smooth transition to adulthood. The mistake usually happens when we treat children as if they do not understand enough, or like they cannot recognize their feelings and do something about it. If we want a child who is self-active, thinking critically, interpreting and expressing his feelings, obviously we are looking for a high level of aesthetics. Education does not need a very expensive background to be good enough, but it needs a different method and mentality.

In this project kids through their choices and at the same time through the choices of other kids, saw one side of their classmates which was more personal, vulnerable, and

sensitive. They discovered parts of themselves that they might be ashamed of or did not know how to express them. Cultivating empathy, self-knowledge, and self-consciousness, is not an easy task, in a competitive contemporary arena, even in school. The multi-modal teaching method has many possibilities and can offer many tools for learning, but is not an easy task for the teacher. It presupposes openness and flexibility in programming. Nevertheless, the richness of the effective and emotional fulfillment even at a personal level for the teacher himself will reward him. Another teacher, the architect Pallasmaa (2022:13) says in the introduction of his book 'The eyes of the skin', that he had *"already begun to deal systematically in his teaching with the dominance of vision and the suppression of the other senses, as well as with the subsequent disappearance of the senses and sensual qualities in architecture"*, but in the years that followed, however, his interest, in the importance of the senses both philosophically and in terms of experiential learning increased substantially, characterizing his work.

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Conflict of Interest Statement
The authors declare no conflicts of interest.

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