

THE ROLE OF PHENOMENOLOGY IN EDUCATION PROCEDURE

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Abstract

Consideration of 'Quality' in architecture is often missing in contemporary architecture. The visual representation and the pleasure of the eye have alienated the architect from the qualities of the senses and the real "emotional" human needs. This segregation of the human body from a true appreciation of the qualities through the senses has encouraged us to take on a research on the experience of it in contemporary educational spaces. The intention of the presented project is to explore how some architectural parameters influence children's expression.

Tangibility could be characterized as the basic distinction between the qualities we examine classifying them into two categories; the tangible and the intangible materials. Tangible materials are the actual constructive materials whose 'rich' surface provokes the tactile senses, primarily, and the rest of them to create an experience. The intangible materials, lighting and consequently color give to the space an intangible quality which can be mainly experienced by vision or hearing, respectively. The stimuli a person, and more specifically a young child, can collect through his senses from a space facilitate tendencies toward the provocation of specific emotions such as anger, disgust, joy, fear or sadness. Most of the times they feel the need to express them in different ways, as children have higher emotional intelligence than adults. Children in contrast to adults use their five senses to experience a space, an object or an element avoiding being restricted only to vision. For this reason we focus our research on children (6-12 years old), the future generation, to lead to a holistic, experiential, interactive and sensory rich educational environment.

Depending on how each individual approaches his emotions and subconsciously decodes them, he leads himself to some reactions and actions according to the stimuli he experiences. Such reactions could be the mobility into the classroom, the enhancement of their sociability, the teamwork, the responsibility and the self-confidence to take initiative. These elements are missing from the children of this age at the contemporary educational society, and they are nurtured rarely.

The current phenomenological imprint of the contemporary Greek classrooms is disappointing and a process of its improvement is more than essential. The aim of the school and of any educational environment should be the multifaceted and multidimensional learning forming integrated personalities.

The above remarks correspond to the research framework under which the presented project was undertaken in a primary school of Heraklion, Crete to a classroom of the 4th grade, with 9 years old children. The fact that the desks constitute children's main owned object in the classroom was the starting point from which we decided to initiate our intervention. This featured changes on the color and texture in relation to the

standard surface.

In addition to the above research project, a one day workshop took place in Heraklion to children of 6-7 years old. Children were asked to imagine and draw the ideal classroom for them, which led to conclusions about the materiality, both tangible and intangible, for their educational environment.

The conclusion of the research will help to establish the ideal phenomenological values to a new framework, which can be incorporated into the Greek classrooms. The hypothesis is that the creation of such an experiential, interactive and sensory rich environment available to children would help them to enhance their attention, cognition and psychology.

Keywords: Phenomenology, education, architecture, children, parameters, quality, educational psychology, materials, educational psychology, research projects

1. PHENOMENOLOGY

Contemporary architecture is making efforts towards architectural quality in recent years. The absence of stimuli into the spaces made occupants to feel unfamiliar and distant in it, as there was no direct interaction between the surrounding area and the user. This alienation from the qualities of the senses and the real “emotional” human needs composed an architecture offering only ergonomics and no experience, shrinking the senses and the feelings instigated by the built environment. The conciliation between the human body and a true appreciation of the qualities through the senses has encouraged architects to reconsider qualitative elements (phenomenology) into their designs. The situation becomes crucial in educational spaces as it is vital such spaces provide a sensory interesting environment and to cultivate the development of the children that are at the stage of exploring their environment and then, through intuition, learn and shape their personalities (Day, 2007: 4). Our intention is to employ these phenomenological aspects and apply them into educational spaces for the creation of an experiential, interactive and sensory rich environment available to children, which would help them to enhance their attention, expression, cognition and psychology.

The phenomenological values are these parameters whose inclusion into the design could increase the quality of a space, affecting mainly the ambience of space. Lighting, color, materiality, acoustics are the main ingredients which constitute it. The aim of this research is to comprehend the influence of these factors in terms of the qualities they provide into the space. Their impact on user's senses will be investigated in order to identify in which extent these values affect the human's psychology and expression through the phenomenological prism.

Material compatibility and the light cast on things are two of the parameters which are critical for the composition of spaces to achieve architectural quality. Both of them have as common denominator the nature of materials whose application on key surfaces compromises the preeminent qualitative effect. These factors on architectural quality affect the user's senses provoking him/her to discover and perceive the hidden truth of the materials and space. Especially when talking about children, they assimilate an excessive amount of buildings' hidden imprints and respond according to how they feel in a space. Architectural quality then becomes the key for child development responsive design (Day, 2007: 8).

Tangibility could be characterized as the basic distinction between the above qualities classifying them into two categories; the tangible and the intangible elements. Tangible elements are the actual constructive materials whose 'rich' surface provokes the tactile senses, primarily, and the rest of them to create an experience. The intangible elements, lighting and consequently color as well as acoustics, give to the space an intangible quality which can be mainly experienced by vision or hearing, respectively. The vast domination of vision is being shrunk and disputed under the realm of the other senses.

The distinction above established the foundations of our research which analyzes the tangible and intangible materials in a phenomenological manner. Phenomenology examines the sensual nature of architecture and the real experience of natural materials. What is important in sensual architecture is the truth of materiality and space and how successfully they are highlighted.

2. TANGIBLE SPATIAL ELEMENTS

Architecture has the capacity to reinforce our sense of reality, experiencing, analyzing the world we are involved and not be mere spectators in a fabrication or fantasy world (Pallasmaa 2005: 11). Materials¹ could

¹ Material is a noun referring to “the matter from which a thing is or can be made” (oxforddictionaries.com, online view 20/11/2012).

be characterized as tangible fabrics embracing a building and revealing a particular atmosphere to the surrounding area and the users. Every building, in sense of the atmosphere it reveals because of its materials and its form, conquest a distinct position in the overall place. Materials are chosen as a means of transmitting messages, highlighting the important parts of the building and covering some aesthetical, functional or architect's personal demands. They are not merely the building's cloth and they have not necessarily been faced in this way.

Tangible elements are the materials and can be divided into two categories; the natural materials – stone, brick and wood- and the machine made materials – sheets of glass, glazed metals and synthetic, composite plastics. However, the contemporary architecture, except from some brilliant examples, has been flattened and simplified applying the second category of materials failing to meet their sensual demands. This type of materials prevents the eye to infiltrate into their surface and complicates the tactile sense to experience and conceive their truth and validity. These artificial materials were invented to cover the mental, psychological and immortal demands of the contemporary people because of their fear towards death. The “perfect” glossy totally artificial materials are though vulnerable to scratches and everyday life wear. In fact they are lifeless (Day, 2007: 138). On the other hand, the natural materials reveal their age, origin, tactile surface (Fig. 1) and mainly their history and the way they were exploited by humans in the continuum of time (Pallasmaa 2005: 31-32). They mature and obtain a richer texture while aging. They are covered with layers of their own written history. They on the contrary to their opposites provide maturity and aging lessons. Of course it is not impossible to live in static places like the first; but the experienceless environment gradually becomes uninteresting by the significant absence of stimuli. Such a space will never embrace the user but he/she will have to conform to it (Day, 2007: 138). Bloomer and Moore are depicting the same failures of the contemporary societies on the suspension of the mental narrative and coherence from the environment to the body and imagination (Bloomer & Moore 1977: 105).



“Fig. 1” Feeling the texture of materials (Vrettou, 2013)

The overdose of these artificial materials turned architects, users and builders against them and more specifically to suggest, as Jean Nouvel did, a world composed of no materials. This extraordinary suggestion targets to bring the construction industry and the human societies again in touch with the “non-synthetic” but tangible world (Leatherbarrow 2009: 74). There is an urgent demand for a turn towards another architecture based on real substances, which will enhance people to face and participate in a world of natural materials.

Zumthor proposes a world constructed entirely of natural tangible materials, exposing their full of concreteness, while architectural spaces are generated by preexisting substances (the natural materials). This architecture is not so light and elegant but dense and heavy making its presence felt; as the natural world (Leatherbarrow 2009: 76). On the surface of natural materials cracking and other signs of aging could be observed which have been caused by environmental factors or corrosion through the everyday use. This process of affection is characterized by Zumthor as “a process of enrichment”. Human constructions gain a great richness when traces of life and age are exposed on their surfaces (Leatherbarrow 2009: 58). The time which is accumulated on their skins' reveal visual evidence of actions and behaviors, which make them even more enriched (Leatherbarrow 2009: 82). However this richness does not include traces of human life as a good designed building made of natural materials will be able to captivate any human trace and reveal only its real meaning (Leatherbarrow 2009: 78). Through the process of enrichment buildings of natural tangible materials gain respected value, something is lacking from those made of synthetic materials, which always look flawless. However “well-crafted materials disclose an equally primitive reality: the inner potential

of things, their unforeseen possibilities and unspoiled clarity, no matter whether they are artificial or natural" (Leatherbarrow 2009: 177).

The group that shows great sensitivity in these effects are the children, who are as if by magic drawn to natural elements and therefore these materials. Materials such as earth, rocks or crystals, all fascinate them, and tacitly attract them. They are capable of climbing on cliffs and hills to discover all sizes of rocks and pebbles and they even use them to build something. That does not mean they are literally interested in geological education but that springs from the fact that "earth is the realm of form". By experiencing such materials they familiarize with form and substance, while the rooting and anchoring qualities of these materials make them feel more secure (Day, 2007: 221-224).

However an important factor that influences the user when natural materials are chosen is the manpower. Loos as well as Ruskin could depict onto the surface of the tangible materials the signs and traces of human hands. The conscious treatment of these materials by the "thinking" hands is a rich process where they receive, welcome and elaborate the raw materials giving shape and form to their natural identity (Heidegger 1977: 357).

The craftsmen are the specialists who let their instincts free to create forms based on knowledge that they have gained by devoted training and experience. Their importance is described by Aris Konstantinidis as "the eyes that feel and hands that see" (Leatherbarrow 2002: 229-231).

The role of these men demands complete dedication on the laws of any individual material (stone, wood etc.). They have to listen to them and understand their weaknesses and possibilities in order to highlight their language to everyone (Pallasmaa 2009: 55). Using the "eyes at the fingertips" as Wirkkala said (Pallasmaa 2009: 54), they come in close contact with the tangible materials establishing a dialogue with them which leads to the solution of the problem and the final form of the raw piece of material (Sennett 2008: 9). The craftsman in this conduct has the advantage to control and modify his material in every stage, something which is impossible to happen on industrial materials where their treatment is based on a preplanned commandment (Pallasmaa 2009: 56). This lack of thinking hand on artificial materials makes them even weaker to correspond to human's requirements.

This last statement corresponds accurately with the current educational environment in Greek schools. The standard absence of natural materials and the constriction of stimuli isolate children from the natural environment and restrict their inventiveness and expression. The absence of their own traces in the surrounding space makes them feel alienated and face the school as an unfamiliar environment adopting aggressive and disappointing behavior towards it. Zumthor considers that every space, depending on the used materials, has its own 'temperature' and this is quite compatible with its level of intimacy and ability of appropriation, thus how 'related' a space comes with the user, how it interacts with him and how it influences him. The 'temperature' of a space or building is very important, on how it affects the body and the senses (Zumthor 2006: 33,49 & 86).

Through the application of tangible natural materials into the educational spaces the phenomenological imprint will be enhanced and students will start have motivations to interact with the space distracting as much information and knowledge as they desire. Through this cultivation students will have the possibility to be developed into conscious citizens with wide knowledge and integrated personality as the aim of the school and of any educational environment should be the multifaceted and multidimensional learning forming integrated personalities. *-The ability of active intervention of their own environment leads to appropriation and self-accomplishment. That, consequently, leads to creativity and the development of better active citizens.*

3. INTANGIBLE SPATIAL ELEMENTS

Lighting as an intangible material became object for concern for many philosophers and architects during the centuries, who have analyzed and occupied with it in a peculiar way. This occupation is not such in terms of its effects on physics and mathematics as in a phenomenological aspect. Thus how light could be perceived and affect the mind and the soul of the users under a process of treatment. Phenomenology is an alternative way of manipulating space, materials and lighting, including shadows, to create memorable living experiences through the human senses. The interaction of the human senses with the building have an impact on the transformation of "emotion and perception" and this is the purpose of the architectural existence. As for the existence of phenomenology, it is the utility of quality and materials whose applications affect the senses and compose a memorable effect (Theory of Phenomenology, Arch 630: Theory and context, p 2-5).

Light and existence are deeply engaged in the Western history of thinking. Ultimate belief in this cosmology conviction is the use of light as an invisible functional tool that opens the gates to an understanding and familiar world. Visibility is very crucial in Greek tradition as it represents the faith of a truth that could be verified visually. Light on its way directs the user's relation to the world. As light draws human beings since the ancient civilizations it is understood that it raises mental clarity, energy (e.g. to play) and motivation (Day, 2007: 101-102). By seeing light it is implied that through the visible you can perceive the invisible. Louis Kahn affirms: "we are actually born out of light you might say. I believe light is the maker of all material. Tangible material is spent light" (Zajonc 1993: 54).

However, Junichiro Tanizaki suggests light is praised by shadows and a space can be experienced at its most when the shadows vary from heavy to light (Fig. 2) to create a mysterious feeling of beauty (Tanizaki, 2001: 29-30, Zumthor, 2006: 92). This lure of darker places implies in children preferred spaces as they enjoy snuggling up there to dream and unfold their imagination in darker bits of a space (Day, 2007: 102-103).



"Fig. 2" Light & shadows Thermal Baths by P. Zumthor (Barmpouti, 2012)

Besides the above, Merleau-Ponty introduced another parameter, this of color. He faces light and color as co-existent qualities and not as primary and secondary quality respectively, as some did. He tried to overcome the contemporary mistake of perception of color, that a thing has a unique color persisting the same in any context and that there is one proper color for every single thing that we have to know how to identify it. For him lighting and color are qualities that cannot be distinguished from any other property of the thing. And it is demand to be experienced as part of the thing, as it is happening with any other characteristic. Color cannot only be perceived visually but also can be recognized by its haptic sensations, its sonority or even its smell (Vesseleu 1998: 44). As Pallasmaa said "our skin is actually capable of distinguishing a number of colors; we do indeed see by our skin" (Pallasmaa 2005: 10).

Especially in educational spaces it is suggested that the decision on the quality of lighting has to depend vastly on the illuminated surfaces. Sunlight doesn't reflect the same when it meets a concrete wall as when it meets a wood finishing. For this reason children's mood is affected significantly by light, therefore a suitable variety of brightness, warmth and quality of light should be introduced to accommodate it. Also color veils as part of the light substance have a great impact on a child soul as they stimulate wide ranging moods establishing specific emotions such as anger, disgust, joy, fear or sadness (Day, 2007: 111 & 117).

4. EXPERIMENT

The above theory and remarks correspond to the research framework under which the presented project was undertaken in the 4th primary school of Nea Alikarnasso at Heraklion, Crete to a classroom of the 4th grade, with 9 years old children. The fact that the desks constitute children's main owned object in the classroom was the starting point from which we decided to initiate our intervention. This featured changes on the color and texture in relation to the standard surface.

The choice of the school was based on the vision of the headmaster, Mr Perisinakis Antonis to improve his school and its effectiveness. The particular classroom of the school is consisted of 16 students (7 girls and 9 boys) of which 60 percent are Greeks and 40 percent are Romani. It is really important to be mentioned that

the diversity of the students will be interesting in the carriage of the research.

The two experiments of the red and yellow surfaces on the desks were applied to the half students (with no exclusion gender and ethnic group) for their behavior to be comparable with that of the control group. The introduction of the cardboards was made through the lesson of fine arts to be easier for the students to accept it as part of the lesson and the task work.

The children's acceptance and first reaction on the red cardboards first and the yellow cardboards later were impressive. They started to explore the surface with the most of their senses feeling grateful that an external researcher made them feel remarkable giving them stimuli for expression and creativity. The above reactions were observed from the whole classroom. The duration of each experiment was 3 weeks and the last day a questionnaire – personal interview was carried out individually to each student of the sample giving a first feedback to the research.

The red and yellow color on the desks liked to the majority of the students giving the opportunity to the whole classroom to cooperate, socialize and move around the desks creating something really good on the colored surfaces. The impressive point is that all students had the same reactions on the colored surface which means that the new factor affects the same all students at the same age without exception their origin or gender.

Even it was against the classroom rules to draw the desks, the red and yellow surfaces made the pupils feel free to express their thoughts and feelings. The influence on the "3rd element" was quite clear on this sample as the occupation and articulation with new creative activities (e.g. drawing, writing, composing) proved the above theory.

In the question if you would change anything on your desk the answer was totally positive. Most of the students would change the color of the surface concluding that they prefer every desk to be individual and different but not the materiality as all of them prefer their desk to be wooden. As for the shape, some of them prefer to be alone on the desk and behave at will on the top surface and some prefer a round desk to socialize and be involved with more children.

Students of this age take any opportunity to experience their tangible and intangible environment with their senses establishing a kind of dialogue with it. (Fig. 3) Their need for an interactive meaningful whole is very important as these architectural factors can affect and perform positively on children's psychology and expression.



"Fig. 3" Children express themselves on 'yellow desks' (Barmpouti, 2015)

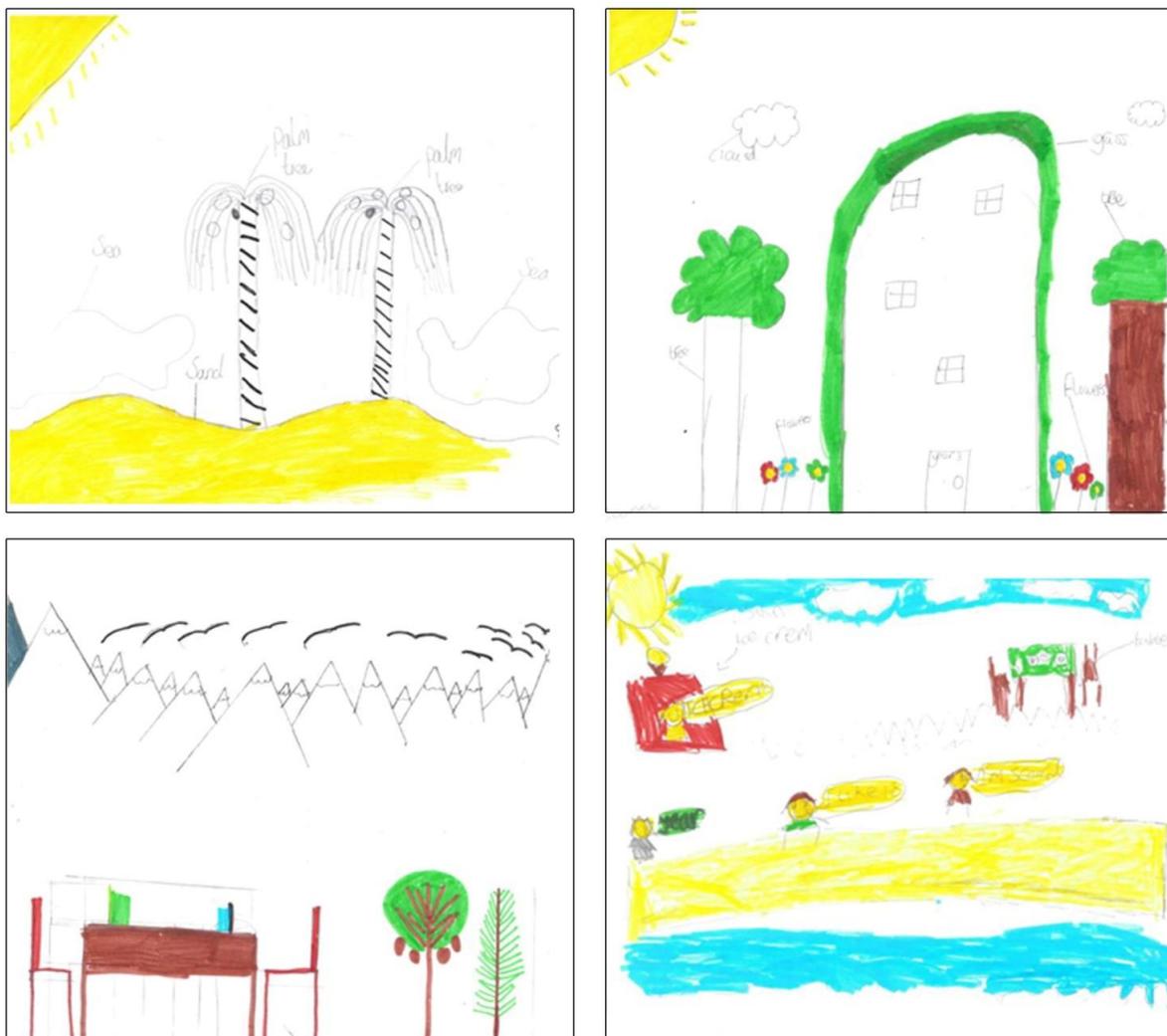
5. ONE DAY WORKSHOP

Similar were the outcomes that were collected from an one day workshop that took place also in Heraklion, (same school) to children of age 6-7 years old. During the day they were asked to draw their ideal classroom and our intention was to seek their intuitive responses on the place, materiality, lighting conditions, the element of nature etc.

The children were explained that there were no restrictions on what they could draw, as for their ideal learning space, and the results were impressive. After drawing their ideal educational environment each child had to talk a little bit about and explain it. The last part was very important because the children were getting enthusiastic about their drawings and also we could know the reason for drawing some particular elements.

In general there were some elements that were repeatedly appearing in the drawings and these are the trees, water, furniture, flowers, sand, sun, walls and windows. (Fig. 4) On the contrary some of the elements that were not very common but still existing amongst the drawings were the books, whiteboards/blackboards, umbrellas, ladders and doors. There is thus an obvious preference & tendency towards the natural elements instead of the manmade or the ones that are traditionally related to conventional schools as they currently are (books, boards, etc.).

The fact that most of the kids draw their ideal classroom to be located outdoors or indoors with a number of natural elements though (one even draw a green roof without realizing it) coincides with the fore mentioned theory on the importance of architectural quality and the role of the parameters (natural tactile materials or sunlight) in the design of educational spaces.



“Fig. 4” Presence of natural elements on children’s drawings (Vrettou, 2015)

CONCLUSION

The whole framework of the research hypothesis and the experiment is based on the approach of enhancing the educational environment through small scale/high impact interventions with the collaboration of teachers and pupils, as developed at the Transformable Intelligent Environments at the TU Crete. One of the foundations of this approach is that the provision of elements with high phenomenological value in combination with the ability of children to interact and affect them, creates a gradual elevating sense of belonging, positive disposition and learning eagerness. The field studies conducted, through both the experiments and the workshop, in comparison with the studied existing literature, made obvious that pupils need to get free from the current state of the Greek educational environment, which is defined as an obstacle to the appropriation. The current educational system has as a result the students to reduce their creativity, expression and imagination and to have restricted or nonexistent stimuli in education, which could act inhibitory to the formulation of an integrated personality. Children at this age are good recipients of their surrounding environment changes giving a genuine, sincere and spontaneous feedback to the particular research. (Fig. 5)



“Fig. 5” Children’s feedback for their future school (Barmpouti, 2014)

Thus, architectural qualities can be the tools to either meliorate the existing phenomenological imprint or contribute in introducing a holistic, experiential, interactive and sensory rich educational environment. For the achievement of the above goals our future steps will be the experimentation with different colors, textures and sizes on desks and wall surfaces as well as the introduction of natural elements into the educational spaces. Moreover, we aim to experiment with lighting and acoustic conditions in order to settle a model of ideal conditions where children feel comfortable to be expressed and educational information to be successfully conveyed. Students no longer have to depend exclusively on teachers for the acquisition of information but the interactive classroom and educational environment can be part of the teaching method.

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