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## An Introduction to ATINER's Conference Paper Series

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Dr. Gregory T. Papanikos  
President  
Athens Institute for Education and Research

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## **Education through Architecture**

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### **Abstract**

The starting point for this research work is the thesis that architecture should be the basis of education. On an analogy with the book Education through art of Herbert Read, we support this thesis, building bridges between thinkers, educators and researchers, namely, by converging the theory of complex thought of Edgar Morin, the studies on multiple intelligences of Howard Gardner and the theory of progressive education of John Dewey.

We faced doubt when we try to integrate architecture on a discipline group classification. It is a social science, or a natural science? Maybe it's both, i.e. apply, use and belong simultaneously to both classifications. Vitruvius also describes this "architecture is a science adorned with many other disciplines and knowledge". Integrates knowledge of natural science with knowledge of the social sciences, models the territory in response to social demands. It is art but is also technology, is the convergence of interdisciplinary knowledge, destroys disciplinary boundaries and builds transdisciplinarity. Thereby architecture has the ability to integrate the aesthetic expressive experience, the technical operating knowledge, the deductive analytical knowledge and the normative ethical self, reunifying the art, territory of complexity with science, territory of simplification. And is this capacity that interest us, instead of creating possible realities like art, architecture creates real possibilities.

**Keywords:**

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The starting point for this paper is the thesis that architecture should be the basis of education. On an analogy with the book *Education through Art* of Herbert Read, we support this thesis by building bridges between thinkers, educators and researchers, namely, by converging the theory of complex thought of Edgar Morin, the studies on multiple intelligences of Howard Gardner and the theory of progressive education of John Dewey.

Herbert Read starts its book, *Education through Art*, written between 1940 and 1942, referring that the thesis that he is presenting is not original, having been explicitly formulated by Plato in the fourth century BC and adding that his only ambition is to translate Plato's view on the role of art in education in terms that apply directly to the needs and conditions of the age in which he lived. This is also our goal. We seek to substantiate an *Education through Architecture*, in a relation simultaneously analogous and complementary to the theory defended by Read. In order to support this theory, we begin by defining and framing the values of contemporary education, as well as what challenges it faces. Finally, we seek to understand the meaning of architecture and of educate *through* architecture, trying to answer this question: Can architecture, as an art, assume the educative role that now we entrust it, from the material construction of the real to the integral construction of the *self*?

### **From Education**

In 1999, Edgar Morin defined *The seven knowledges necessary in the education of the future* corresponding to seven black holes, "completely ignored, underestimated or fragmented in educational programs" (Morin, 1999). This critic supports an education focused on the construction of a free, individual and ethical consciencousness, socially integrated, which comprises the real as a dynamic system of uncertain future. Thus we will start with a interpretative reading and re-order of this seven *knowledges*, into three distinct but interdependent groups, namely: *Knowledge*, *Self* and *Real*. Supplementing this reading with contributions from other educational theorists such as Rousseau, Dewey, Herbert Read, Howard Gardner and Elliot Eisner.

#### *Knowledge*

The first knowledge requires the understanding that *knowledge* is always a translation of the real, a reconstruction (de)formed by the cultural context, in time and space, and therefore prone to errors. We confuse the *idea* with the *real*, the map with the territory. Understanding this fact, refers to the implication of the self, by the interpretation which he conceptualizes, in the process of epistemological construction. "... and, as Nietzsche would say, what is interpreting else then evaluate?" (Serra, 2003: 364). Select, hierarchize, construct critical judgment? Thus it opposes the disjunction of the *self* (*ego cogitans*) and the *object* (*res extensa*) and offers us a critical approach to the complexity of the real. Understands the *self* as a (un)constructor of the representations of knowledge and implies the construction of knowledge as a

dialectical process between the subjective and individual, and the objective and social.

In turn, the second knowledge, the *pertinent knowledge* is closely related to the first. Opposes the disjunction of the complex into simplified elements, as well as to the reduction by "...abstract unification which annuls diversity" (Morin, s / d.). This paradigm of reduction and disjunction sees the world as a machine and tries to generalize the laws of physics to all natural and human sciences. Also in architecture, we suffered the influence of this model:

*"The new architecture has many methodological characteristics similar to the scientific research - objectivity, transmissibility, experimental control, collective collaboration in space and time - and can be considered as the result of the extension of the scientific spirit to a field traditionally alien to it (...) but is distinguished from this by its ambitions of independence from any institutional conditioning. (...) and is already on guard against the manipulation of science and technology at the service of power, ..."* (Benevolo, 1984: 92)

But despite this influence, in architecture, we always work the real whilst a complex system. We know the parties, recognizing the decomposition of the whole and know the whole, recognizing the singularity of parties<sup>1</sup>. Thus, this systemic approach to the real, as opposed to mechanistic model, builds knowledge by studying the processes and relationships between the components of real, and requires coordination between science and art. And because we love art but do not fear science, the question imposes itself: can we learn this **process through** architecture?

### *Self*

The third knowledge, the *human identity* proposes the convergence between all sciences and demands respect for human needs, for our singular and innate consciousness and at the same time for the social consciousness. The social value of singularity is described by Herbert Read. The singularity can be expressed only in the way we talk or smile,

*"But can (also) be a singular way of seeing, thinking, inventing, of expressing thoughts or emotions - and in this case, the individuality of a man can be invaluable for all humankind."* (Read, 1942)

But this singularity, secluded, not integrated, has no social value. It is only when reconciled with the social unity that this value is made concrete. And then we cooperate, that is, we participate in the construction of a collective identity, offering that which is particular to us.

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<sup>1</sup>"We can not know the parties without knowing the whole, neither know the whole without knowing the parties." (Pascal quoted by Morin, 1999).

The fourth knowledge, the *human understanding*, inseparable from the previous, involves the empathy and identification with the other, with the difference, but also an understanding of ourselves as self-knowledge. Expressed in the singular value of society, can be described as the society's contribution to our personal development. The way society shapes and constrains our individual consciousness. The way how the consciousness of the *self* is born by the confrontation with the consciousness of others. And is by this dialectical relationship of *constraining* tensions by duty and of *cooperation* by reciprocity (Read, 1942), that human consciousness constructs its unique ethical sense and this balance constructed is always ephemeral, constantly put to the test.

The fifth knowledge<sup>1</sup>, *Anthropo-ethics*, is described by Morin:

*"It is up to humans to develop at the same time, the ethical sense and our personal autonomy (our social responsibilities), ie, our participation in humankind, because we share a common destiny."*

But can we educate for autonomy and simultaneously socially integrate? Are we educating for autonomy or for freedom? Pedro da Cunha distinguishes autonomy of freedom, differentiate it positively. While freedom is a *negative concept*, we are free from something, autonomy refers to a free and individual consciousness, governed by laws that are hers, chosen and interiorized. In turn, the concept of freedom in Rousseau is the freedom of consciousness, formed in autonomy, social preserved from corruption, and the birthplace of critical and divergent thinking. "The truly free man wants only what he can and does what pleases him." (Rousseau, 1762). Thus, freedom in Rousseau is a ethical freedom or a responsible autonomy, which results in a natural education that we also find in Dewey: "The only freedom that is lasting, is the freedom of intelligence, that is, the freedom of observation and of critic...". And because in architecture we contend this knowledges, the question imposes itself: can we learn this **dialogue** *through* architecture?

*Real*

*Uncertainty*, the sixth knowledge<sup>2</sup>, is constituted as a challenge to the intrinsic ability to human nature which is essential to survival, the constant adaptation to environment. Thus this knowledge demands a reflexive and critical capacity able to identify and solve problems. And herein lies its value, because "Uncertainty is simply a more alert state than certitude...". (Joseph Browsky *quoted by* Juhani Pallasmaa) Fosters creativity on a no ending exercise of uncertainty. In architecture, we alternate between the uncertainty of subjective poetry, "where we have no explanation, we look and confront and is

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<sup>1</sup>In the original text, Antropo-ethics appears on the seventh place. However, we have modified the original order, for this knowledge also comprehends an ontological learning, which justifies its integration into the group of the Self.

<sup>2</sup>Fifth in the original text.



naked our thought" <sup>1</sup> and the certainty of objective prose where the idea (re)construct the materiality of the *real*.

Finally, the last knowledge, the *planetary condition* leads us to the understanding that linear causality can not justify local and global reality and where, as we have seen, only a systemic and holistic understanding, integrative of contradictions, can prepare us for the only constant in life, *uncertainty*. Closely articulated this knowledges, compose the theory of complex thought and somehow, we return to the first listed knowledges. And because the complexity of thought in architecture is easily proved, the question imposes itself: can we learn this **perspective** *through* architecture?

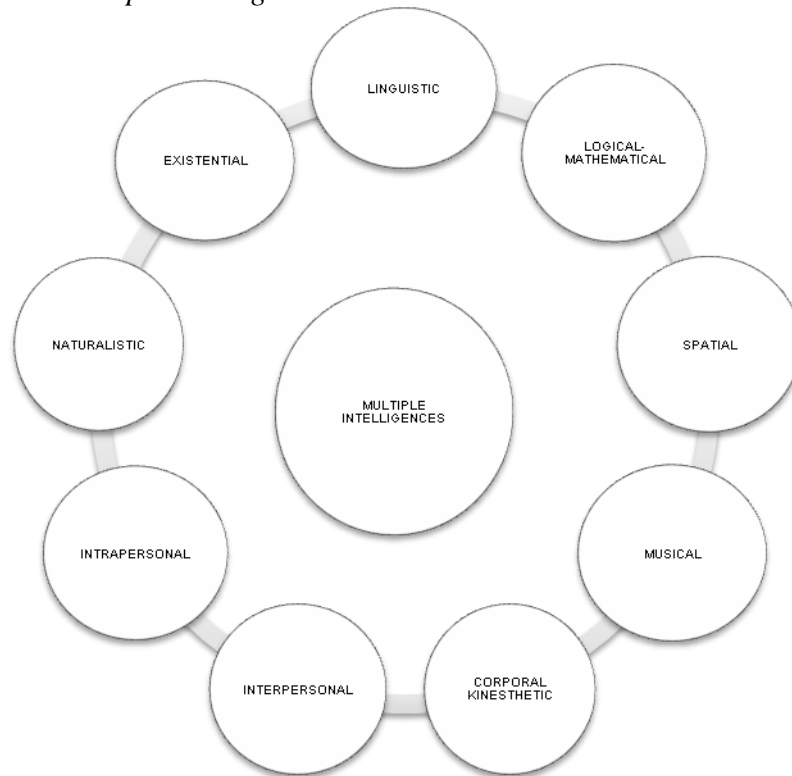
From this definition of the values and challenges of contemporary education, we have now to focus our attention to the theories of how our mind works and how we learn.

Howard Gardner, in the theory of multiple intelligences, shows that the human being has distinct intelligences. The linguistic is the ability to communicate both oral and written. The logical-mathematical is the ability to know the concepts of quantity, time, to established relationships between objects and to solve problems through the formulation and testing of hypotheses. The spatial is the ability to perceive the real and to transform this perception recreating new visual experiences. The musical is the ability to comprehend the world of sounds. The corporal-kinesthetic is the ability to control the body movements in its relationship with the environment. The interpersonal is the social ability to empathize with others. The intrapersonal is the individual ability to control our own emotions and actions. Between 1994 and 1995 Gardner added the naturalistic intelligence to the previous list, featuring it as the sensitivity to the relationships between humans and the environment, and admitted the possible existence of the existential intelligence, the ability to understand the fundamental issues of life.

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<sup>1</sup>Sofia de Mello Breyner *quoted by* Alexandre Alves Costa.

**Diagram 1. Multiple Intelligences**



The assembly of these intelligences is the biological and psychological potential of the self, and the balance in value of each in every human being, allows the uniqueness of each self in the infinite variations established between them. Gardner therefore considers the interconnection of all of them, and a complex functioning of the human mind.

*“almost all cultural roles require multiple intelligences, it is important to consider individuals as collections of skills, and not as having a unique ability to solve problems that can be measured directly by means of paper and pencil tests.” (Gardner quoted by Rosa, 2009: 57)*

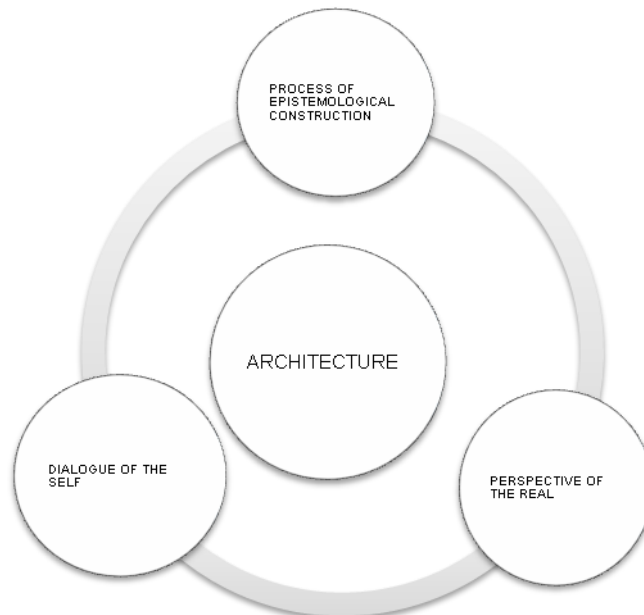
Thus Gardner reinforces the existence of different cognitive profiles in each individual and that each individual must have cognitive competences in several areas simultaneously. This understanding justifies an integral education centered on the individual and on the development and enhancement of his innate abilities.

John Dewey, considered the main representative of the progressive education movement, through its work tried to define how we learn and established that we learn mainly by experience. In the book *"Experience & Education"* (1938), he reflects on the dialectical relationship between experience and education. Progressive education is focused on the natural and singular endowments, encourages the (ex)pression and development of the *self*

from within, focusing on building experiences linked to its previous and current experiences. Can be described as a progressive organization of free activity and as an epistemological construction of a dynamic, flexible and changeable process. Dewey referred two fundamental criteria that define an experience as educative, namely: the experimental continuum and the interaction with the real. First, the principle of experimental continuum advocates the quality of experience measured in the influence or effect in future experiments and aims for the connection between these experiences. This connection develops, during the metacognitive process of learning, the individual and historical consciousness, that is, the articulation in time of our personal experiences, constructing reflection habits. In turn, the second criteria, defined as the interaction with the environment, refers to the importance of contextualize the experiences. Thus, education for Dewey is a social process of confrontation of experiences. A process of knowledge construction from which the individual is free to set aims, to consciously evaluate the consequences of the action and to organize the means, on a metacognitive adjustment process of learning. In short, an educative experience always tends to a progressive organization of more knowledge and more information and for their subsequent contextualization in reality.

In this path we have traveled certain issues have imposed itself, such as: Can we learn *through* architecture the **process** of epistemological construction? The **dialogue** of the *Self*? And the **perspective** of the *Real*? But because we already know these answers, since architecture is our mediation with reality, it is through her that we see, feel, and transform, the real issue remains the first stated: can we educate *through* architecture?

**Diagram 2.** *Architecture as Mediation*



Therefore, we are interested in understanding this triad of relationships of interdependence and complementarity, whereby the self constructs knowledge and which is simultaneously the object of this (re)cognition. We speak of knowledge as an interpretation of reality. Alberto Carneiro relates that in architecture, the teaching and practice of design are structured in a dialectical process of opposites conjunction. On the one hand, the objective pragmatic knowledge, experimented and codify in systems, methods and models communicable and verifiable. And on the other, the subjective knowledge, manifestation of our inventive and individual expression, that typological or morphological constructs identity.

### **From Architecture**

*“In every age someone, looking at Fedora as it was, imagined how to make it the ideal city, but while building its miniature model, already Fedora was not the same as before, and what until yesterday had been one of its possible future, now was just a toy inside a glass sphere.”* (Calvino, 1972: 16)

As we have seen, described in this quote are two essential ideas for the reasoning and structuring of contemporary education. On the one hand, leads us to the understanding of reality as a dynamic model of an uncertain future. And on the other, illustrates how human consciousness, that wishes and imagines, acts in the transformation of the real and is transformed by the real that imagines. *“Every man creates forms, every man organizes space and if forms are conditioned by circumstance, they also create circumstances.”*

(Távora, 2008: 85) Thus, we can say that on this dialogic relationship between the *self* and the *real*, the thought of organizing forms in space is innate in human consciousness.

If we think about the etymological origin of architecture we see that it dates back to the Greek, rises from the junction of *arché* (first/primary) with *tékton* (construction). To Anaximandro de Mileto, a pre-Socratic philosopher, *arché* as an essential element, could not belong to the material world. He defined it as the *infinite*, the *apeíron*. Thus, architecture would mean the construction of the infinite. In turn, the architect Juhani Pallasmaa describes architecture as a mediator between the *self* and the *real*, as a particular way of looking that reconstructs a version of reality. And where is function of architecture to give a human dimension to this infinite, in time and in space. According to this perspective, architecture means the (re)construction of this infinite now humanized, suitable for the self, on the sensory perception, on the attribution of meaning, on the construction of memory and on the desire of transformation.

As architects, we contextualise the *real*, that is, we understand the connections between the parts of a whole, we structured forms and weave contexts. Therefore we observed this real, according to a singular perspective

and we do these entwining it with different and sometimes conflicting dimensions of human activity. We converge art and science, ethics and aesthetics. And as a surgeon, we operate a organic, alive and ever changing *real*. This singular perspective supports architecture as a particular form of epistemological construction, based on a critical *praxis*. This fact converges to the theory of complex thought of Morin, where the construction of knowledge, as theory and practice,

*"... is a critique of reason and a critical reason. A construct and deconstruct of the reasons of the reason as an eternal and relative dialogue process."* (Morin, s/d)

Therefore, by the transdisciplinary vision that combines "*the object of inquiry to the many contexts in which it appears*" (Kincheloe, J., 2006) and by the way he associates, analyzes, attributes meanings and builds bridges between perspectives of understanding reality seemingly divergent and where, in each moment, reflect critically on the real and on the ideal that he aims, we see the architect as an privileged educator and architecture as a form of epistemological construction of complexity.

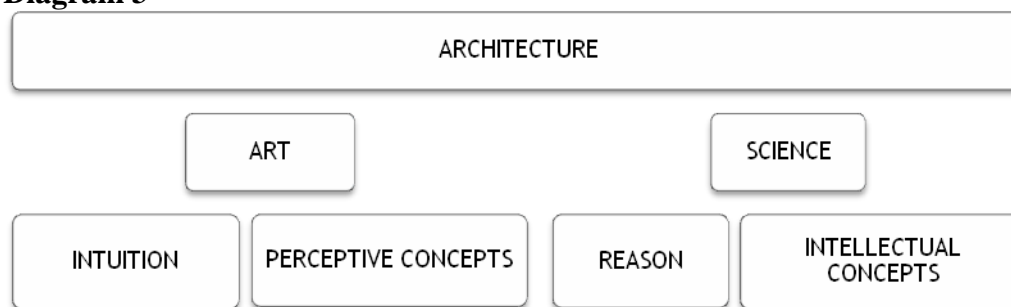
As we have seen, experience has an educational role in which the sensory perception plays an essential function. The experience in architecture comprises the two principles that according to Dewey define an educational experience, that is, the relationship between experiences and the interaction with the context. But one question still remains. What qualifies, in specific, the experience in architecture, while an educational experience?

The sense organs connect us to the real and describe it either by images, sounds, tacts, flavors or fragrances. In this synaesthetic relationship of real recording, our minds process the sensory information and manages to identify persistent objects each time it finds them in experience. Construct memory and form concepts. Thus, senses bind in an interconnected synesthetic relationship. And human consciousness (re)constructs the real through imagery interconnected. This real is observed, and this observation requires, simultaneously, an analytical thought of decomposition and typological categorization of the parties and a synthetic thought of understanding the relationships between them.

The value of this dynamic perceptive as an knowledge instrument of human consciousness is described by Arnheim in three essential virtues. Firstly, the ability to see beyond the visible, to grasp the functioning of the mind, to explore its dynamics, referring to self-awareness and metacognition. Secondly, the construction of a metaphorical language of assigning meanings. And lastly, the psychological phenomenon to which Arnheim dubs resonance, by the way it resonate on the body, through physical phenomena, the sensations that the environment or the images provoke on it.

This third virtue emphasizes the value of learning through architecture, taking into account that involves the body in relation to space, and justifies the need for a space-time literacy.

**Diagram 3**



This diagram represents our answer to the question: What qualifies, in specific, the experience in architecture, while an educative experience? The thought in architecture switches between the subjective and metaphorical, and the objective and analytical; switches between intuition and reason, between aesthetics and ethics, between poetry and prose. Thereby architecture has the ability to integrate the aesthetic expressive experience, the technical operating knowledge, the deductive analytical knowledge and the normative ethical self, reunifying the art, territory of complexity with science, territory of simplification. And in short, learning through architecture means that, through a metacognitive process, the *Self* develops his own biological and psychological potential through articulated and contextualised experiences and that by which he (re)constructs the knowledges and values of contemporary society.

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