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Architecture Studio Teaching. Transforming Reality

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Abstract

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In the league of the best architectural schools in Europe, Porto ranks fourth. There are two well-known Portuguese architects, both schooled in Porto and both winners of the most prestigious Pritzker architectural prize: Alvaro Siza and Eduardo Souto de Moura.

It is worth investigating their works and the way they perform architecture in order to understand the basics of teaching architecture with constant good results in the real world.

In decoding their strategy one understands that “architects do not invent, they just transform reality” (Joaquim, 2006) Between Siza’s need to sketch in order to understand and then transform reality and De Moura’s need for simplicity and anonymity, there is a clear commitment to create architectural expression, connecting it to past architecture, to Modernism, and to the arts. They are, somehow, reinventing the past but they stay away from the “gratuitous invention” (Frampton, 1999, 2000, p. 57) which seems to overflow the architectural world today and the studio class, as well.

How can all these be achieved? The result of the study is a set of teaching points and concept strategies to be investigated in the architecture studio. The paper also presents a designed workshop ready to be implemented.

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Keywords: Architecture studio; anonymity; precedent; workshop; Siza; De Moura.

1. Introduction

This paper introduces a new strategy in teaching in the architecture studio under the Lumen Congress theme: Education Novelty. The article addresses the Romanian academic world specialising in architecture, in order to rethink the way an architecture studio is planned and conducted. In a world where images travel rapidly and students are tempted to adopt them without a proper analysis and understanding, our research proposes a tool to counterbalance this.

The research question is: is there a way to derive architecture studio teaching strategies from the best practice in architecture? The methodology developed to answer this question can be applied to any valuable architect in order to extract valid teaching strategies and can become a tool for architectural studio tutors in universities worldwide.

The research focuses on two architects, both Pritzker Prize laureates: Alvaro Siza and Eduardo Souto de Moura. They were both schooled in Porto and subsequently taught or are still teaching at the University of Porto. In 2016, De Moura was awarded a prize for his contribution to teaching architecture by the X Ibero American Biennial of Architecture and Urbanism (BIAU) in Madrid.

2. Methodology

Neither Siza nor de Moura speak about their teaching strategies. Hence, it is interesting to investigate the way Siza and De Moura perform architecture in order to understand the basics of teaching architecture which will lead to constant good results in the real built world. The research employs historical methods; it investigates the works of the architects over 20 years, between 1990-2010, covering 49 built architectural works. An analytical and interpretative research is conducted for each of their built work, mainly focused on: the space, the structure, the expressivity and the way the buildings relate to the site. Two summarising tables present the analytical research described by key words in order to identify the main characteristics of the works (see table 1 & 2). As there is information available regarding their modus operandi in architecture these are essentially studied. It is reasonable to assume there is a connection between the way they perform architecture and the way they teach architecture. I propose to delve into the above reasoning and investigations, to extract lessons to be learned and taught in the architecture studio.

2.1. Analytical Research

Table 1. Alvaro Siza. List of buildings 1990-2010. Analytical table

YEAR	ALVARO SIZA	SPACE	STRUCTURE	EXPRESSIVENESS	SITE
1992	METEOROLOGICAL CENTRE, BARCELONA	Introverted space; spaces are facing an internal court. The windows are facing this space; cut out windows. Pedestrian route through the building, ramped route	Structural walls	MONOLITH PANOPTICON Mix of materials that change the perception of scale (exposed concrete, painted brick)	Urban context preserves pre-existing pedestrian routes to cross the building
1993	CGAC, SANTIAGO DE COMPOSTELA	Flexible box space External piazza Covered portico Ramped route Skylights	Structural walls, metal beams	MONOLITH HOMOGENEOUS FLOATING LIKE Contrast interior/exterior	Integrated into the local city image; local materials, used innovatively

				contrast sacred/profane contrast texture/colour	
1993	SETUBAL, PEDAGOGICAL CENTRE	Introverted space U-shaped patio Two level porticoes Ramped route Skylights	Structural walls, concrete columns	FRAGMENTATION ORTHOAGONALITY Cloister layout for the classrooms; plays with symmetries and asymmetries	Adapted to the local topography; open to the landscape
1994	VIERIA DE CASTRO HOUSE	Introverted/extroverted spaces Interconnected spaces	Structural walls	FRAGMENTATION Directed view, framed perspectives	Adapted to the local topography; open to the landscape
1996	SANTA MARIA CANAVESE CHURCH	New interpretation for a religious space Indirect natural light Indirect light for the altar New interpretation for the bell tower Interior/exterior relationship. Honesty of the exterior along a Modernist tradition.	Structural walls	MONOLITH Mix orthogonal and curb orthogonality + curb, inverted apses, subtle play with symmetries and asymmetries sacred/profane contrast	Integrated in the local topography; brings in the exterior landscape image sacred/profane landscape
1996	FACULTY OF ARCHITECTURE PORTO	Spaces concentrating circulation connecting independent volumes. U and L-shaped internal courtyards Zenith light Route	Structural walls	FRAGMENTATION ORTHOAGONALITY Modernists quotes: horizontal windows, horizontal concrete sunshade	Integrated in the local topography “minimum earth movement was required”(Cremascoli, 2013, p. 35) The rhythm of volumes mirrors the city building typologies (see photo in Curtis, 2000, p. 107)
1997	EXPO '98 PAVILION LISBON	Exterior covered ceremonial piazza U-shaped patio Two level porticoes	STRUCTURE AS ARCHITECTURE Concrete Pre-stressed concrete for the roof. Detailed anchorage (eng. Cecil Baldmond)	FLOATING ORTHOAGONALITY The rigour of the ceremonial fascist architecture; the scale of a covered urban space = scale that expresses power	Relation with the landscape; facing the ocean
1998	ARCHITECTURE OFFICE, PORTO	U-shaped patio	Structural walls Reinforced concrete	MONOLITH One volume clone of Faculty of architecture; identical architectural language.	Neutral
1999	CONTEMPORARY ART MUSEUM SERRALVES FOUNDATION, PORTO	Flexible box space Interconnected external spaces/gradual transition, two U-shaped courts, outside shady portico spaces organised around atrium zenith light, walking roof terrace route	Structural walls Basement: columns and beams	FRAGMENTATION HOMOGENEOUS Interplay with symmetries and asymmetries, cantilevered window directed view, framed perspectives	Integrated with the park landscape
2000 (2003)	PAVILION PORTUGAL DE LA HANOVER, COIMBRA (2003) ¹	Flexible box space L-shaped building which determines an external piazza Zenith light	Metallic structure, ventilated façade	MONOLITH Roof as topography peculiar façade material “contemporary plasticity.” (Figueira, 2008, p. 28)	Neutral: can be moved; reference to local materials: cork, azulejos.

¹ Designed together with Eduardo Souto de Moura

2003	VAN MIDDLEM HOUSE	New L-shaped building + existing building = U-shaped patio	Brick structural walls	MONOLITH Three simple, archetypal grouped volumes “criticizing the banality of the modernist glass house.” (Figueira, 2008, p. 29)	Integration by using the scale and cross section of the existing building.
2004	TERRAÇOS DE BRAGANÇAS	The top terraces faces the ocean Volume organised along a linear inner court. Determined by the ruins discovered on site Own internal museum	Reinforced concrete	THREE MONOLITH SPLIT	Integration with the slope of the site and with the surroundings. Finishes suggesting local materials. Exhibits the ruins.
2005	SERPENTINE GALLERY ²	Flexible, multiple directions	STRUCTURE AS ARCHITECTURE lamellar wood	MONOLITH HOMOGENEOUS The façade as a mix of transparent and translucent materials	Sustainable approach, sensitive to its position in a park
2006	ZAIDA BUILDING, GRANADA	Three independent volumes	Reinforced concrete	THREE MONOLITH SPLIT Plays with symmetry and asymmetry	Integration in the urban and historic context. The ruins of the patio house are assimilated in the new building
2006	COMPLEX SPORTIVE RIBERA SERRALLO	Exterior piazza edged on two sides Peculiar inner court Transitional spaces, centred spaces Skylight, ramps External shaded portico Honesty of the exterior along a Modernist tradition.	Reinforced concrete, exposed concrete Roof truss structure	HOMOGENEOUS Horizontal composition with parallelepiped and semi-circular volumes. Horizontal slit windows “the search of compatibility between rationalist language and natural landscape.” (Figueira, 2008, p. 77)	Neutral
2006	CRAMA ADEGA MAYOR	Hermetical closed space with one opening towards the landscape External transition space	Structural walls	MONOLITH Directed view, framed perspectives	Dialogue with the landscape. Inserted in agricultural landscape
2006	PAVILION AN-YANG ³	Transitional exterior spaces (covered, portico) Amoebic shape interior space with no clear centre Flexible space Honesty of the exterior in relation with the interior, along a Modernist tradition.	Structural walls	SCULPTED MONOLITH HOMOGENEOUS Directed view, framed perspectives “pure plasticity” “continuous movement” (Figueira, 2008, p. 122)	Open towards the landscape
2007	GONDOMAR, SPORT CENTRE	Transitional exterior spaces Spaces with clear centre Skylights; Ramps Honesty of the exterior in relation with the interior, along a Modernist tradition.	Reinforced concrete, exposed concrete Roof truss structure	HOMOGENEOUS (same external colour and texture) composition with three volumes	Neutral
2007	VIANA DO CASTELO LIBRARY	Exterior patio; new typology: suspended patio	Reinforced concrete, metal truss, bridge-like structure	FLOATING ORTHOGONALITY Horizontal slit windows	Opens the perspective to the ocean, external public space

² Designed with Souto de Moura.

³ Designed with Carlos Castanheira, Jun Sung Kim.

2007	HOUSE IN MAJORCA	Introverted/extroverted space Access in the house at an intermediary level Connected spaces	Structural walls	FRAGMENTATION Directed view, framed perspectives	Dialogue with the landscape. Fragmentation of the land transferred to the volume. Perspective towards the water
2007	ARMANDA PASSOS HOUSE, PORTO	Introverted space Skylights Patio	Structural walls	FRAGMENTATION HOMOGENEOUS	Closed towards the town like a citadel
2007	ALEMÃO SINTRA HOUSE	Spaces directed towards the landscape, interconnected Spaces connected with the exterior at different land levels	Structural walls	FRAGMENTATION Seems like a collection of small dwellings with individual private terraces. "pure fragmentation" (Figueira, 2008)	Dialogue, integration, openness to the landscape
2008	HOTEL SPORTIVE, PANTICOSA	Transitional exterior spaces covered or not. Series of internal courtyards. Hierarchy of the interior spaces. ramps	Reinforced concrete	HOMOGENEOUS Roof as topography. Horizontal slit windows.	"... that links the mountain and becomes a connecting member that links the mountain and the more urban elements of the spa town." (Figueira, 2008)
2008	IBERÊ CAMARGO FOUNDATION, BRAZIL ⁴	Flexible sculpted space Atrium organising other spaces. The ramped museum (reference to Guggenheim NY) Route Elevated patio	Reinforced concrete	SCULPTED MONOLITH HOMOGENEOUS Directed view, framed perspectives	"the form of the building mirrors the undulating shape of the slope against which it is built." (Figueira, 2008)
2009	MIMESIS MUSEUM	Amoebic shape interior space with no clear centre Flexible space Honesty of the exterior in relation with the interior, along a Modernist tradition. Skylight	Reinforced concrete	SCULPTED MONOLITH HOMOGENEOUS Directed view, framed perspectives	"This museum is a cat" arch daily
2009	LLEIDA UNIVERSITY	L-shaped public space Ramps Skylights, atrium	Reinforced concrete	HOMOGENEOUS ORTHOGONALITY Introverted because of the sunshades	Related to existing building and pedestrian routes in campus
2010	CULTURAL CENTRE MANZANA DE MEDELLÍN	Perimeter edged urban piazza following the medieval trait of the city. Independent volumes. Zenith light in the auditorium	Reinforced concrete	FRAGMENTATION Directed view, framed perspectives, horizontal slit window, horizontal concrete sunshade	Inserted in harmony with the historical town

Table 2. Souto de Moura. List of buildings 1990-2010. Analytical table

YEAR	DE MOURA	SPACE	STRUCTURE	EXPRESSIVENESS	SITE
1991	CASA DAS ARTES, PORTO	Introverted space dominated by solid areas Directional space	Concrete, stone	MONOLITH Like a citadel Tactility of the stone	Directed by existing trees on the site

⁴ In 2005 Alvaro Siza lectured at Ion Mincu University of Architecture in Bucharest where he introduced this project, under construction at the time.

1991	HOUSE IN TOLEDO	Introverted and extroverted at the same time. Corridor space opened toward the sight of the stone wall /rocky soil	Wood	MONOLITH/BOX HORIZONTAL About the roof: “declaring as a new object, visible as if fallen from the sky.”(Guell, 1998)	Exhibits main site elements Stone wall/ rocky soil exhibition Materials blend
1995	RESIDENCIAL BUILDING RUA DO TEATRO	‘Box within a box’ typology Repeatability and modularity	Steel structure	TWO MONOLITH/BOXES Exposed structure Grid composition Variability of the façade through large scale external louvres	Takes on the proportion on long narrow plots with dead walls covered with metal sheet or slate. Stepped volume aligned with the left and right heights.
1997	POUSADA, AMARES	Organised around patio internal courts, typical for monasteries. Dominant/ auxiliary space Serviced/service space	Local stone	Solidity, timelessness Reference to Scarpa’s intervention in Verona Castel Vecchio	The ruins are left untouched for contemplation. Dialogue with the site
1999	MATOSINHOS ROW HOUSES	Typology of row houses around internal patio court. Spaces oriented inwards Introverted spaces	Structural wall	Citadel like windows towards the exterior Stone tactility	Cuts of the landscape a walled area Perspectives controlled within the walls
2001	MAIA RESIDENTIAL	Modularity, repeatability, grid (5.9m)	Steel structure	MONOLITH/ BOX Modulated second skin façade Variability of the façade through large scale external louvres	Neutral context, no landmarks Identical façades
2002	SERRA DE ARRABIDA HOUSE	Patio Spaces directed towards selected views	Structural walls	FRAGMENTATION Citadel like Mix of urban and rural character Quotes from Siza – Case Vieira de Castro “carefully proportioned users.”(Caciuc, 2012) [our translation]	Adapted to the local topography. Cuts of the landscape a walled area Perspectives controlled within the walls Urban feel within the landscape Land design
2002	HOUSE IN CASCAIS	“the space is defined by strong limits – opaque vertical and vertical planes and loose limits – glazed planes that allows the gaze to flow freely according to the free plan principles.” (Caciuc, 2012)	Structural walls	FLOATING LIKE HORIZONTAL MONOLITH / BOX Seems to stand in an unstable equilibrium Grey tones that varies with light incidence	Land design
2003	2 HOUSES IN PONTE DE LIMAS	Directional space Dominant/auxiliary space Serviced/service space Introverted space	Structural walls	HORIZONTAL MONOLITH/SQUARE BOX Seems to stand in an unstable equilibrium Citadel like	Expresses the slope of the land by a slant Parallelepiped land design
2003	CINEMA HOUSE, PORTO	Spaces directed towards selected views	Structural walls/ metal	Siza directed perspective “the alteration of light and dark and the asymmetrical placement of the stairs are reminiscent here of the mentor...Siza.” (Jodido, 2004, p. 516)	Anchors the volume into external key points
2003	STADIUM, BRAGA	Open, covered, monumental space Longitudinal axis is directed towards nature; typological innovation	Roof: full coil cables with dampers supporting 24 cm prefabricated	DYNAMIC/ MONUMENTAL Duality solid/fragility Seems to stand in an unstable equilibrium section as the main	“you can call it landscaping, even land art”

			concrete slab, suspended 50 meters high above the ground. 1 m wide reinforced concrete structure for the east gallery	expression of the building Self-standing cantilevered stadium stands	
2005	QUINTA DE AVENIDA	Patio Directional space Modularity	Reinforced concrete	MONOLITH/ BOX HORIZONTAL Expressed structure	Exploited topography
2007	SCHOOL AND HOTEL, PORTALEGRE	Interior courts	Reinforced concrete	FLOATING LIKE MONOLITH/ BOX HORIZONTAL	“To the south, literally <i>hangs</i> over the landscape, enjoying the natural slope” (Corrêa, 2011, p. 235)
2007	BURGO TOWER, PORTO	Interior open plan, equal oriented space around a core Urban plaza Possible to partition space in a modular way	Reinforced concrete core and reinforced concrete perimetral structural wall for the tower Reinforced concrete column and beams grid for the other building	MODULE FAÇADE TEXTURE FAÇADE Clear influences from Mies van der Rohe, Chicago (Corrêa, 2011) The tower façade is a play with positive/negative transparent/opaque	Urban plaza in a site with no particularity
2007	OFFICES AVENIDA BOAVISTA	Spaces oriented towards selected views “various trapezoidal monitors” (de Moura, 2012)		FRAGMENTATION RANDOM BOXES Seems to stand in an unstable equilibrium	View oriented towards the park Land design
2007	HOUSE IN BOM JESUS 2	Directional space Dominant/ auxiliary space Introverted space Five terraces	Reinforced concrete walls with horizontal and vertical form-work	MONOLITH /STACKED BOXES <MONOLITH /STACKED BOXES <monumentalitate domestică>1 beton armat aparent plan orizontal puternic exprimat Transforming the topography in 5 green terraces”	Transforming the topography in five green terraces “the building is buried in the surroundings.” (Broto, 2007, p. 90) Land design
2007	HOUSE IN MAIA 2	Spaces oriented towards two patios Introverted	Structural walls	Citadel like domestic monumentality	Taking the slope of the land Land design
2008	MUSEUM OF CONTEMPORARY ART, BRAGANCA	Introverted space completely closed to the city, organised around two patio Zenith light Ramped access Modernist quotes: the slit windows, the corner window.	Reinforced concrete, steel structure	MONOLITH FLOATING LIKE WHITE BOX HERMETIC	Highlights the level differences between the two streets the building is served by
2008	VENICE PAVILION PAVILION VENICE	Interior and exterior space manipulated by reflection Ambiguous and surprise spaces	Steel structure	Mirroring, façade as a mask The building as an analogy to the city	Relates to the site (Venice), referring to its craft history and its opulence
2009	PAULA REGO MUSEUM CASCAIS	Hierarchy of spaces White box type of spaces Zenith light Local connection with the	Mass coloured concrete	Two identical volumes bring an oneiric quality Reminiscent of Alcoaça kitchen and	Takes into account the existing tall vegetation

		landscape Dynamic volume		Boulle (Corrêa, 2011) Domestic monumentality	
2009	HOUSE IN GIRONA	Two patios, five distinct volumes Introverted spaces	Concrete, stone	FRAGMENTATION MASSIVE Part of the historical medieval town as a natural development	The house strives to adapt to the scale of the environs more than to the 'picturesque' qualities of this geograph (Grande, 2009)
2011	CREMATORIUM UITZICHT	Introverted Directed towards the patio Sunken patio – invented typology (Grande, 2009) Descending ramp	Reinforced concrete	HORIZONTAL The roof as façade	Integrated in topography Land design
2013	MULTI USE HALL VIANA DO CASTELO	Sunken main space Zenith light Transparent space at the pedestrian level = unobstructed view to the ocean	Reinforced concrete and bridge like steel structure	MONOLITH/BOX FLOATING LIKE The installation is placed outside “The Little Pompidou” ⁵ (Grande, 2009)	Unobstructed view to the ocean

3. Findings

3.1. Sculpture

Both Siza's and de Moura's architecture have a strong sculptural character. It is interesting to note that both of them considered sculpture as a potential endeavour before deciding to work in architecture. Their architecture is not sculpture, not even sculpture with a practical function, though. Yet we find some common attributes between their architecture and contemporary sculpture as follows:

a) Robust bodily presence – as opposed to other contemporary architecture that plays with transparency, and a translucent, airy, weightless appearance. Their buildings are written in/with stone (Blaser, 2003, p. 17). The Burgo Tower – for de Moura, and the Lisbon Pavilion – for Siza are two representative examples.

b) Homogeneous character – they express architecture with one unitary material. We find this at the Paula Rego Museum – for de Moura, and the Iberê Comargo Foundation – for Siza.

c) Strong degree of abstraction – in which the form of the building prevails function. The two museums mentioned above are suitable examples, together with the Multifunctional Hall – for de Moura, and The Library – Siza, both located seashore in Viana do Castelo.

d) Fragmentation – more specific to Siza, this often comes by avoiding the 90 degree angles; it is mostly the case with his houses: the Vieira de Castro House, the House in Majorca, the House in Sintra, but also with public buildings such as the Serralves Museum and the Iberê Comargo Foundation, while for de Moura I only detect the Cinema House in Porto in this category.

3.2. Light

Siza is concerned with and concentrated on bringing natural light into the building, but not by using the elementary window opening – a rectangular cut into a solid wall. His strategy creates a whole different perception of internal space. He includes the skylight and the top edge indirect light in design. This is the case of the Serralves Foundation, the Portuguese Pavilion in Hanover, the Godomar

⁵ Reference by Siza about Pompidou Centre opened in 1977 and designed by Richard Rogers and Renzo Piano.

Pavilion, Leida University, and Aveiro University Library. For the Ribeira Sport Center he designed cylindrical openings in the curved roof, above the swimming pool. This indirect lighting and its reflection into the water creates a spatial experience which seems to be connected with the Moorish bath tradition.

For the Santa Maria Canavese church Siza designed a naturally back lit altar that has an evanescent character. He achieved this using indirect lateral natural light. These ‘windows’ are hidden to the direct view. As opposed to what one expects when entering a church, moderate indirect natural light coming through small openings, placed high above the visual field, he introduces long horizontal windows that visually connects the church with the fields nearby. Whenever he uses elementary standard windows he adopts a similar method: the window is cut in a special relationship to the landscape. It is not cut for natural light only, but, to rather connect the interior and exterior at a very precise point. This is a constant concern for his design. For the Iberê Comargo Museum, for example, one of the few openings in what seems to be an art fortress, is a small, stamp-like view towards the ocean. He applies this design to all his houses that change direction in order to bring the best landscape view inside. Siza uses light in a scenographic way, in order to modulate space and to create emotions. He points out that, “it is very hard to make windows properly. Frank Lloyd Wright said that architecture would be more beautiful if it didn’t have windows or we didn’t have to make windows.” (Santos, 2008).

3.3. *Avoid windows*

De Moura is in love with the solid wall and terrified by the window, as well. He also has a big concern related to the elementary window opening but he tries a different way to solve his problem. As a characteristic of his works between 1990 and 2000, he avoids windows by organising spaces around patios, to hide the necessary windows from the exterior view. When this is not possible, in urban settings for instance, he disguises windows with overall external shading devices, like in the Rua do Teatro Residential Building and the Maia Collective Building. The works for the underground stations in Porto should have been his most loved as they do not require perimeter windows, as is the case with the Uitzicht Crematorium, a mix between a sunken building and patio arrangements which both serve the same purpose.

In “Contemporary Architectural Image in Europe. Comparative Study on Recent Portuguese and Swiss Architecture” I described five particular ways in which de Moura avoids ‘making windows’ (Bărbuică, 2016):

- a) Anthropomorphous façades, zoomorphous façades; the Cinema House in Porto seems to be an analogy to a butterfly according to Nuno Grande (2009) and a cat jump according to de Moura himself.
- b) Patio and solid walls façades; as in the Bom Jesus II house, the Contemporary Art Museum in Bragança and the Paula Rego Museum.
- c) Avoid window perforation in favour of overall transparent glass plane; Cascais house, Cinema House, the hotel and school in Portalegre, Avenida Offices, Multifunctional hall in Viana do Castelo, and the House in Moledo.
- d) A mesh strategy for hiding the windows.

- e) The total exclusion of 'the window' by presenting the section instead of façades, as in Braga Stadium.

Even de Moura advises: "...when you don't know how to resolve the elevation, show it or display the section." (Grande, 2009).

For the Burgo Tower he invented a kind of composite skin made of a mix between the solid wall and transparent zones, uniformly distributed around the building. This mix does not expose the duality between the two elements (wall and window) and gives a unitary expression to the volume (see also point 3.1.b).

3.4. *Modus operandi - creative tools*

Siza is well known for his evocative hand sketches that underline his architectural work. It is his way to investigate the world; it is research and artistic viewpoint. For him, to draw equates to be. "He draws for pleasure, necessity and vice", says Angelillo (1997) while commenting on his life's vocation. His sketches are the compass for navigating complexity: "I always need to take my time to decide which is the right path, and I rely on my sketches to guide me in that search", he says (Santos, 2008).

Siza's credo is that "architects do not invent, they just transform reality" (Joaquim, 2006), similar to what Alvaro Alto believes. His creative method is rather a lack of a particular method. He starts with intuition as the backbone of structuring an idea. He creates from mental images of the spaces that are first built in the imagination. He states the importance of the hazard in the creative process. For him creativity is a sinuous path of back and forwards, not guided by any preconceived idea. In an interview given to Curtis in 2000 he affirmed that the idea for the Lisbon Pavilion came almost by chance. His view is that "... sometimes it is necessary to design almost without objectives, to let the idea emerge" (Curtis, 2000).

De Moura does not speak much about his creative process. We find out that he does not like to write: "as I am not a writer writing is hard for me. In the time it takes to write, I could draw a project" (Güell, 1998), but we get a clue that his creative process is connected with reading and taking notes. He names the authors that have mostly influenced his works: Donald Judd – *Architektur*, Aldo Rosi – *Scientific Autobiography*, Robert Venturi – *Complexity and Contradiction*. He loves poetry – Herberto Helder, Fernando Pessoa, and admires Borges. A secret weapon might be the small note book that he always carries around, a mix of words, scribbles and ideas. He considers this notebook to be "...a kind of sediment that works through the unconsciousness" (Güell, 1998). For him, the most important thing is that architecture should always solve a problem, and in this sense he admires Jean Nouvel. "Architecture is good... when [it] solves a problem and fits in the surroundings" (de Moura, 2011, p. 464). De Moura is not after the new at any cost, but he is in search of an architecture of mutual adjustment between the natural and the built, in search of a feeling of serenity. He is very clear that he is not after an architecture that generates emotions but, rather, after one architecture that resolves a conflict (Rakesh, 2014).

4. Design Workshop

In order to detail workshop c) mentioned above, a possible line of work during the architectural workshop is introduced below:

Starting from how to avoid windows

Students are to investigate why and how to avoid windows in the works of Siza and Souto de Moura.

Exercise step 1

Tutor presentation:

The works of Alvaro Siza and Souto de Moura to be investigated from the way they work with windows and walls, with solid and transparent dichotomy. The concept of homogeneity will be introduced.

Exercise step 1A

Tutor presentation:

Creative strategies in the works of Alvaro Siza and Souto de Moura (see point 3). Each student to reflect upon his/her own creative ways and to critically adopt a new one from the one presented.

Exercise step 2

Students to find 3–5 examples of similar strategies that other contemporary architects employ in their work.

Exercise step 3

Debate: Is avoiding windows a current fashion in architecture? The mesh strategy for the façade: is it another way of disguising the window? Examples to be discussed.

Exercise step 4

Students to present one current finalised project. It should be a studied program: residential, museum, library, sports, office etc. Each student will start to examine why and how to transform the building skin as to avoid the windows, as understood in their classical sense of cut out rectangular/arched openings in a solid wall.

Exercise step 5

Analyse different options with each student.

Exercise step 6

Students to build a 1/50 – 1/20 model of the new proposed façade.

Exercise step 7

Students to run 3D options (alternatives?) of the new façades options. The previous façade solution will be put in parallel and analysed. What is lost and what is gained? What about homogeneity?

Exercise step 8

Exhibition with printed panel of the architectural project including the summary conclusion: what is lost and what is gained, including the model or photo of the model.

Recommended audience for these tasks: third, fourth and fifth year undergraduates.

Note: the notion of ecological façade can be introduced by the tutor in two steps and this element can be added to the final study and conclusions.

5. Conclusions

We can see that some common characteristics of the architecture practised by Siza and de Moura are grouped around the concept of light. One can see how a common problem can receive various distinct solutions as shown at points 3.2 and 3.3. In teaching architecture this observation leads to a special interest around the two topics, sculpture and light, when designing an architecture studio. For students, there is one additional incentive to find yet another possible solution to an architectural problem. By understanding two yet so different approaches to making architecture and different tools for creativity, both tutors and students are invited to critically address their options and to agree that there is not only one path, or one way, and that they should continuously develop their personal approach to architecture, both in teaching and learning. Tutors should be able to encourage each student to find his/her own creative means to architecture. This can be achieved by strictly targeted architectural workshops.

As a practical application of this research practical sessions to be taught in the architecture studio could be developed.

a) Starting from sculpture, students are to investigate the following attributes in architecture: robust bodily presence, homogeneous character, and abstract presence. Tutors are to design a workshop to explore contemporary sculpture and to identify ways in which they deal with the four key elements. The workshop will investigate materials, their aesthetic character and working possibilities. Target audience: second and third year undergraduates.

b) Starting from light and its importance in architecture students should investigate:

- Different atmospheres created by different types of windows
- Types of generated interior space
- Types of connection between the interior space and exterior space
- The case of breaking the boundary between interior and exterior

Tutors are to design a workshop to investigate ways of creating atmosphere using different ways of bringing light into the space in connection with the feeling to be rendered inside. Target audience: first, second and third year undergraduates.

c) Starting from how to avoid windows, students are to identify creative ways to achieve this task. Tutors are to design a workshop to facilitate this exercise and to investigate the impact on the internal space and external appearance of such a building. Target audience: third and fourth year undergraduates.

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