Architecture Studio Teaching. Transforming Reality

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Abstract

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>
<thead>
<tr>
<th>YEAR</th>
<th>ALVARO SIZA</th>
<th>SPACE</th>
<th>STRUCTURE</th>
<th>EXPRESSIVENESS</th>
<th>SITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>METEOROLOGICAL CENTRE, BARCELONA</td>
<td>Introverted space; spaces are facing an internal court. The windows are facing this space; cut out windows, pedestrian route through the building, ramped route</td>
<td>Structural walls</td>
<td>MONOLITH PANOPTICON Mix of materials that change the perception of scale (exposed concrete, painted brick)</td>
<td>Urban context preserves pre-existing pedestrian routes to cross the building</td>
</tr>
<tr>
<td>1993</td>
<td>CGAC, SANTIAGO DE COMPOSTELA</td>
<td>Flexible box space External piazza Covered portico Rammed route Skylights</td>
<td>Structural walls, metal beams</td>
<td>MONOLITH HOMOGENEOUS FLOATING LIKE Contrast interior/exterior</td>
<td>Integrated into the local city image; local materials, used innovatively</td>
</tr>
<tr>
<td>Year</td>
<td>Location</td>
<td>Feature</td>
<td>Structural Design</td>
<td>Architecture Notes</td>
<td></td>
</tr>
<tr>
<td>------</td>
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<td>---------</td>
<td>-------------------</td>
<td>--------------------</td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td>SETUBAL, PEDAGOGICAL CENTRE</td>
<td>Introverted space U-shaped patio; Two level porticoes; Ramped route; Skylights</td>
<td>Structural walls, concrete columns</td>
<td>Adapted to the local topography; open to the landscape</td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td>VIERIA DE CASTRO HOUSE</td>
<td>Introverted/extroverted spaces; Interconnected spaces</td>
<td>Structural walls</td>
<td>Adapted to the local topography; open to the landscape</td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>SANTA MARIA CANAVESE CHURCH</td>
<td>New interpretation for a religious space; Indirect natural light; New interpretation for the bell tower; Interior/exterior relationship; Honesty of the exterior along a Modernist tradition</td>
<td>Structural walls</td>
<td>Integrated in the local topography; brings in the exterior landscape image sacred/profane landscape</td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>FACULTY OF ARCHITECTURE PORTO</td>
<td>Spaces concentrating circulation connecting independent volumes; U and L-shaped internal courtyards; Zenith light; Route</td>
<td>Structural walls</td>
<td>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)</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>EXPO ‘98 PAVILION LISBON</td>
<td>Exterior covered ceremonial piazza; U-shaped patio; Two level porticoes</td>
<td>Structural walls Orthogonality + curb, inverted apses, subtle play with symmetries and asymmetries sacred/profane contrast</td>
<td>Neutral: can be moved; reference to local materials: cork, azulejos.</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>ARCHITECTURE OFFICE, PORTO</td>
<td>U-shaped patio</td>
<td>Structural walls Reinforced concrete</td>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>CONTEMPORARY ART MUSEUM SERRALVES FOUNDATION, PORTO</td>
<td>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</td>
<td>Structural walls Basement; columns and beams</td>
<td>Integrated with the park landscape</td>
<td></td>
</tr>
</tbody>
</table>

1 Designed together with Eduardo Souto de Moura
<table>
<thead>
<tr>
<th>Year</th>
<th>Location</th>
<th>Description</th>
<th>Materials/Techniques</th>
<th>Review Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>VAN MIDDLEM HOUSE</td>
<td>New L-shaped building + existing building = U-shaped patio</td>
<td>Brick structural walls</td>
<td>Integration by using the scale and cross section of the existing building.</td>
</tr>
<tr>
<td>2004</td>
<td>TERRAÇOS DE BRAGANÇAS</td>
<td>The top terraces face the ocean Volume organised along a linear inner court. Determined by the ruins discovered on site Own internal museum</td>
<td>Reinforced concrete</td>
<td>THREE MONOLITH SPLIT Integration with the slope of the site and with the surroundings. Finishes suggesting local materials. Exhibits the ruins.</td>
</tr>
<tr>
<td>2005</td>
<td>SERPENTINE GALLERY</td>
<td>Flexible, multiple directions Structure as Architecture</td>
<td>Lamellar wood</td>
<td>Sustainable approach, sensitive to its position in a park</td>
</tr>
<tr>
<td>2006</td>
<td>ZAIDA BUILDING, GRANADA</td>
<td>Three independent volumes</td>
<td>Reinforced concrete</td>
<td>Integration in the urban and historic context. The ruins of the patio house are assimilated in the new building.</td>
</tr>
<tr>
<td>2006</td>
<td>CRAMA ADEGA MAYOR</td>
<td>Hermetical closed space with one opening towards the landscape External transition space</td>
<td>Structural walls</td>
<td>MONOLITH Directed view, framed perspectives</td>
</tr>
<tr>
<td>2006</td>
<td>PAVILION AN-YANG</td>
<td>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.</td>
<td>Structural walls</td>
<td>SCULPTED MONOLITH HOMOGENEOUS Directed view, framed perspectives “pure plasticity” “continuous movement” (Figueira, 2008, p. 122)</td>
</tr>
<tr>
<td>2007</td>
<td>GONDOMAR, SPORT CENTRE</td>
<td>Transitional exterior spaces Spaces with clear centre Skylights; Ramps Honesty of the exterior in relation with the interior, along a Modernist tradition.</td>
<td>Reinforced concrete, exposed concrete Roof truss structure</td>
<td>HOMOGENEOUS (same external colour and texture) composition with three volumes</td>
</tr>
<tr>
<td>2007</td>
<td>VIANA DO CASTELO LIBRARY</td>
<td>Exterior patio; new typology: suspended patio</td>
<td>Reinforced concrete, metal truss, bridge-like structure</td>
<td>FLOATING ORTHOGONALITY Horizontal slit windows Opens the perspective to the ocean, external public space</td>
</tr>
</tbody>
</table>

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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

- **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

### 2007
- **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**
  - 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)

### 2008
- **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

### 2009
- **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, city. Horizontal slit window, horizontal concrete sunshade
  - Inserted in harmony with the historical town

### 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, city. Horizontal slit window, horizontal concrete sunshade
  - Related to existing building and pedestrian routes in campus
  - Inserted in harmony with the historical town

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

<table>
<thead>
<tr>
<th>YEAR</th>
<th>DE MOURA</th>
<th>SPACE</th>
<th>STRUCTURE</th>
<th>EXPRESSIVENESS</th>
<th>SITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>CASA DAS ARTES, PORTO</td>
<td>Introverted space dominated by solid areas Directional space</td>
<td>Concrete, stone</td>
<td>MONOLITH Like a citadel Tactility of the stone</td>
<td>Directed by existing trees on the site</td>
</tr>
</tbody>
</table>

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4 In 2005 Alvaro Siza lectured at Ion Mincu University of Architecture in Bucharest where he introduced this project, under construction at the time.
<table>
<thead>
<tr>
<th>Year</th>
<th>Project</th>
<th>Introverted/Extroverted</th>
<th>Material</th>
<th>Structure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>HOUSE IN TOLEDO</td>
<td>Introverted and extroverted at the same time. Corridor space opened toward the sight of the stone wall/rocky soil</td>
<td>Wood</td>
<td>MONOLITH/BOX HORIZONTAL</td>
<td>About the roof: “declaring as a new object, visible as if fallen from the sky.” (Guell, 1998)</td>
</tr>
<tr>
<td>1995</td>
<td>RESIDENCIAL BUILDING RUA DO TEATRO</td>
<td>‘Box within a box’ typology Repeatability and modularity</td>
<td>Steel structure</td>
<td>TWO MONOLITH/BOXES Exposed structure Grid composition Variability of the façade through large scale external louvres</td>
<td>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.</td>
</tr>
<tr>
<td>1997</td>
<td>POUSADA, AMARES</td>
<td>Organised around patio internal courts, typical for monasteries. Dominant/auxiliary space Serviced/service space</td>
<td>Local stone</td>
<td>Solidity, timelessness Reference to Scarpa’s intervention in Verona Castel Vecchio</td>
<td>The ruins are left untouched for contemplation. Dialogue with the site</td>
</tr>
<tr>
<td>1999</td>
<td>MATOSINHOS ROW HOUSES</td>
<td>Typology of row houses around internal patio court. Spaces oriented inwards Introverted spaces</td>
<td>Structural wall</td>
<td>Citadel like windows towards the exterior Stone tactility</td>
<td>Cuts of the landscape a walled area Perspectives controlled within the walls</td>
</tr>
<tr>
<td>2001</td>
<td>MAIA RESIDENTIAL</td>
<td>Modularity, repeatability, grid (5.9m)</td>
<td>Steel structure</td>
<td>MONOLITH/BOX Modulated second skin façade Variability of the façade through large scale external louvres</td>
<td>Neutral context, no landmarks Identical façades</td>
</tr>
<tr>
<td>2002</td>
<td>SERRA DE ARRABIDA HOUSE</td>
<td>Patio Spaces directed towards selected views</td>
<td>Structural walls</td>
<td>FRAGMENTATION Citadel like Mix of urban and rural character Quotes from Siza – Case Vieira de Castro “carefully proportioned users.” (Caciuc, 2012) [our translation]</td>
<td>Adapted to the local topography. Cuts of the landscape a walled area Perspectives controlled within the walls Urban feel within the landscape Land design</td>
</tr>
<tr>
<td>2002</td>
<td>HOUSE IN CASCAIS</td>
<td>“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)</td>
<td>Structural walls</td>
<td>FLOATING LIKE HORIZONTAL MONOLITH / BOX Seems to stand in an unstable equilibrium Grey tones that varies with light incidence</td>
<td>Land design</td>
</tr>
<tr>
<td>2003</td>
<td>2 HOUSES IN PONTE DE LIMAS</td>
<td>Directional space Dominant/auxiliary space Serviced/service space Introverted space</td>
<td>Structural walls</td>
<td>HORIZONTAL MONOLITH/SQUARE BOX Seems to stand in an unstable equilibrium Citadel like</td>
<td>Expresses the slope of the land by a slant Parallelepiped land design</td>
</tr>
<tr>
<td>2003</td>
<td>CINEMA HOUSE, PORTO</td>
<td>Spaces directed towards selected views</td>
<td>Structural walls/ metal</td>
<td>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)</td>
<td>Anchors the volume into external key points</td>
</tr>
<tr>
<td>2003</td>
<td>STADIUM, BRAGA</td>
<td>Open, covered, monumental space Longitudinal axis is directed towards nature; typological innovation</td>
<td>Roof: full coil cables with dampers supporting 24 cm prefabricated</td>
<td>DYNAMIC/ MONUMENTAL Duality solid/fragility Seems to stand in an unstable equilibrium section as the main</td>
<td>“you can call it landscaping, even land art”</td>
</tr>
<tr>
<td>Year</td>
<td>Location</td>
<td>Description</td>
<td>Concrete Slab, suspended 50 meters high above the ground, 1 m wide reinforced concrete structure for the east gallery</td>
<td>Expression of the building, Self-standing cantilevered stadium stands</td>
<td></td>
</tr>
<tr>
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<td>--------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>Quinta de Avenida</td>
<td>Patio, Directional space Modularity</td>
<td>Reinforced concrete</td>
<td>MONOLITH/ BOX HORIZONTAL, Expressed structure</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>School and Hotel, Portalegre</td>
<td>Interior courts</td>
<td>Reinforced concrete</td>
<td>FLOATING LIKE MONOLITH/ BOX HORIZONTAL</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>Burgo Tower, Porto</td>
<td>Interior open plan, equal oriented space around a core, Urban plaza Possible to partition space in a modular way</td>
<td>Reinforced concrete core and reinforced concrete perimetral structural wall for the tower Reinforced concrete column and beams grid for the other building</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>Offices Avenida Boavista</td>
<td>Spaces oriented towards selected views “various trapezoidal monitors” (de Moura, 2012)</td>
<td>Reinforced concrete walls with horizontal and vertical form-work</td>
<td>MONOLITH/ STACKED BOXES, Seems to stand in an unstable equilibrium</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>House in Bom Jesus 2</td>
<td>Directional space Dominant/ auxiliary space Introverted space Five terraces</td>
<td>Structural walls</td>
<td>Citadel like domestic monumentality</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>House in Maia 2</td>
<td>Spaces oriented towards two patios Introverted</td>
<td>Reinforced concrete, steel structure</td>
<td>MONOLITH, Floating like WHITE BOX HERMETIC</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>Museum of Contemporary Art, Braganca</td>
<td>Introverted space completely closed to the city, organised around two patio Zenith light Ramped access Modernist quotes: the slit windows, the corner window.</td>
<td>Steel structure</td>
<td>Mirroring, façade as a mask The building as an analogy to the city</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>Venice Pavilion Pavilion Venice</td>
<td>Interior and exterior space manipulated by reflection. Ambiguous and surprise spaces</td>
<td>Mass coloured concrete</td>
<td>Two identical volumes bring an onieric quality Reminiscent of Alcobaca kitchen and</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>Paula Rego Museum Cascais</td>
<td>Hierarchy of spaces White box type of spaces Zenith light Local connection with the</td>
<td></td>
<td>Takes into account the existing tall vegetation</td>
<td></td>
</tr>
</tbody>
</table>
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...
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.
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.

References

Rakesh, R. (2014). Eduardo Souto de Moura: It would give me great pleasure should people be moved by my work. The Architects' Journal, Feb.06.