Learning Architecture with Emotion  
Methodology of Thinking  

LUÍS MIGUEL DE BARROS MOREIRA PINTO, Phd.  
Department of Architecture, Investigation Center - CITAD  
University Lusiada  
Lisbon  
PORTUGAL  
moreirapinto.arq@elix.pt  

CLAUDIA SOFIA SÃO MARCOS MIRANDA BEATO, Phd.  
PAULO EDUARDO MAIA DE CARVALHO, Phd.  
Department of Civil Engineering and Architecture  
University Beira Interior  
Covilhã  
PORTUGAL  
cbeato@ubi.pt and pemc@ubi.pt

Abstract: - In this paper we would like to describe a methodology of thinking – Architecture.  
Today there are several concepts about the perception of the space. All sensorial experiences are, now, present  
in the way of see and interpreted the space. What we see is something that creates fillings and sensorial values,  
according an independent way of life; it is like walking with the eyes.  
Architects are now using a different methodology to conceiving projects. They work between what they have in  
reality and the final form. Doing something that it is more than only “Architecture”. They want to create  
atmospheres and emotions.  
The public make part of the scenario, and some unusual ideas, like the sensation of sublime, cold, hot, water,  
ice, storms, etc., are now present in the identity of the final project.  
The recognition of the space is turned to be spacio-temporal, and movement it is not only an optical phenomenon.

Key-Words: - Emotion, Architecture, Perception, Learning, Drawing, Project

1 Introduction
Much has been written by academic researchers about the complex issues surrounding the problem  
of projecting with emotion. To understand perception and the principals elements who provoke  
emotion and emotivity.  
In the image of a drawing of architecture, what we observe and our interpretation is directly connected  
with the symbols and graphic elements, which will express an idea that the author wants to be  
interpreted. It is the meaning of the meaning.  
The importance of the sketch is in the representation of the space (real or imagined), functioning as a  
record of the idea and how it will be executed.  
If we are trying to understand a project of architecture, what we can see? How we can interpret  
the space of the image and its connection with the meaning, or with the final result that the author  
wants to revel?  
To understand space we must found contextual instruments of communications and the respective  
meanings produced by them.  
The necessity of Man dealing with emotions in response of the living experiences, made us create  
languages related to sensations. Point, line and plan become the base of design and representation, as a  
visual communication. Drawing becomes a visual support of Design, and it intention isn’t just create  
aesthetic representation, but also communicate. And the result of that is the form.
By comparison according to Georges Péninou [1],
the advertising image produces the appearance of an
attitude, as equal in architecture, which, much more
than a knowing acquired, it is the response triggered
by reactions in the recipient. For this author, the
purpose of advertising is not communicating an
image, but rather communicates through an image,
the message that you want to stream.
In parallel, in an architecture sketch, the meaning of
the idea is not only representation of the image of
the sketch, but the attitude and mentality of the
observer. Architecture has always been the result of the
delicate balance between art and science. We
perceive things based on our expectations and
knowledge of the world.
Architects, Designers and Artists in general often try
to portray a scene that has an emotional and
psychological effect on the viewer, by drawing on
their own experiences and thoughts, and that it is
here that starts the new methodology for conceiving
a project, with creativity.

2 Learning from drawings
The drawing representation has been, until some
years ago, done by hand. Today, young people,
starts with normality them “life of registers” directly
in the computer.
For some people the use of computer drawing
programs represents an advance in the technology,
and it is the same of doing a handmade drawing,
like as being a drawing utensil, but for others it is
not a “drawing”. But first of all, we must understand
what it is perception?
We could try to define perception as the process of
organizing, interpreting, and selectively extracting
sensory information. The perception leads to the
expression. The expression is essential for the
perception. One “sees” and “it interprets”, the other
“represents”.
The human processing information it is done by the
information received and responses given via input
and output channels, like; Visual, Auditory, Haptic
and Movement. The information is stored in
memory, and it is processed and applied. To do that,
we must have for words in mind; Reasoning,
Problem-solving, Skill and errors.
The obstacles and methodology that the architect
has to face are numerous; he must explain the
meaning of his project.
We understand that the tool that the architect
chooses to work will go to influence the way of
think, the sketch and for who observes the final
drawing. That’s why communicate is anything that
implies an expression and an intention.
The trace will be always characteristic of the
expression of who drew. It will represent ideas or
forms that are translated graphically by the
perception of the observer.
The architect draws spaces through the manipulation
between the Real and the Virtual, appealing to
several techniques, such as: linear drawings,
perspectives, sketches and computational animation.
Nowadays the computer programs facilitate the
execution of ideas, with sophisticated programs and
“renders” from real images. The observer obtains in
real time the image of the final drawing.
Technology is constantly growing and changing
ours ways of living.
The message lives in the expression of the idea.
That expression, which shows the form and
demonstrates several characteristics like the line, the
colour, the ‘renders’, etc., is done either by hand or
with drawing software.
The methodology of doing architectural projects has
been superseded by commercial developments,
alademic studies and social history, based in ideas
and representation of meanings. New forms and
volumes will appear with modelling complexity and
irregularity shapes[2].
Sketches made by hand or using computer programs
are the visual manifestation that allows the
transformation of a concept into another dimension
or media. Exploring the representational qualities of
sketches, discloses the tangible and intangible
aspects that make them fundamental. Digital
sketching programs have attempted to intimate
conceptual thinking.

2.1 Projecting with Emotion- an experience
According an experience made in October 2011, in
Gdansk at the University of Technology, in Poland,
and Beira Interior University, in Portugal, about
"Art and Science – Synergy of Technology and Art
in the City Spaces", we understood that Emotivity,
in projects is something that emerges expression, it
is interactive, reaches people, and create ideas.
The group of students and teachers were from 5
different countries, and Universities; Gdansk
University of Technology - Politechnika Gdanska –
Poland ; Blekinge Institute of Technology -
Blekinge Tekniska Högskola – Sweden; University
of Plymouth - United Kingdom; University of
Liechtenstein - Universität Liechtenstein –
Liechtenstein; Bremen University of Applied
Sciences - Hochschule Bremen – Germany and
University of Beira Interior - Universidade da Beira
Interior, Covilha – Portugal. Students of international studio team were divided in 5 individual groups of working. Itch group works with different methodologies and interpretations of the space; Expectations and Context.
The team works with the principles of: Proximity; Similarity; Continuity; Closure; Area and Symmetry.
When the group starts working, must feel the “place” according some different rolls, like: Appropriation, Dissemination, Empowerment, Networking and Subversion. With this the student starts to fell emotion and turned to be more creative. Drawing or Sketching is now digitally created and can appear unbelievable to the modern eye. But the basic image formation process has not changed.
With this methodology, Images play a fundamental role in the representation, storage, and transmission of important information throughout our personal lives.

The message lives in the expression of the idea. That expression, which shows the form and demonstrates several characteristics like the line, the colour, the ‘renders’, etc., it was done by all groups either by hand or with drawing software. Drawing is a way of communicating and we can learn with it. But at this stage, we must understand if the computer drawing programs reduce or do not reduce the responsibility or block the creativity of the designer.

To architects, that make part of this workshop team, the perspective started to be a basic tool that takes to the demonstration of concepts and ideas. These representations, that are not more than what Virtual Reality, become the most intelligible drawings of who observes the project.

The groups use cyberspace and virtual reality to offer the technologies of computer animation and simulation. During the design process, virtual reality technologies offer to the team of architect’s great enhancements in visualization, sensualisation, and physical experience of virtual rooms.

About the use of virtual reality and computer drawing programs we check the results from some questions about this problem, it was carried through, in 2006/2007, cording a questionnaire to 170 students of both sexes. From 1º year and 4º year of the Architecture Course of the UBI and also with 100 architects with at least 10 years of activity.

Questions asked with yes and no answers:

1-For you, draw on your computer is easier than by hand?
2-In a drawing made by hand you could achieve better the final objectives?
3-The pleasure of drawing made by hand, for itself, is equal to draw in computer programs?
4-Current drawing programs correspond to your expectations?
5-The representation of the original idea is better at drawing made by hand?
6-The pleasure and aesthetic pleasure are equal in two methods?

Table 1. Questionnaire to 170 students of both sexes. From 1º year and 4º year of the Architecture Course.

Table 2. Questionnaire to 100 architects with at least 10 years of activity.

At the same time, teachers, try to understand, from students and architects or designers, what are the principal words to define the characteristics of what it is to draw an idea? And what differentiates the drawing elaborated by computer or by hand?
To understood results, all teachers must use the phenomenology methodology, to take care of the final results. Several meetings between all team were done to discuss these ideas.

Questions asked with three words answers.
1-What differentiates the drawing made by hand to the drawing made with computer programs?
2-Say three aspects that is common to both types of drawing?
3-Enumerates three characteristics of what is, for you, draw?

Table 3. Questionnaire to 270 people (students and architects).

<table>
<thead>
<tr>
<th>ACCURA</th>
<th>EXPRES</th>
<th>INVENTI</th>
<th>FEELING</th>
<th>EASY</th>
<th>RIGOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>25</td>
<td>20</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>0</td>
<td>10</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The totality of the inquired people finds that the existing drawing programs correspond to them expectations. The architects with professional experience, even so understand that the initial sketches are better conceive by hand, the expression and the aesthetic pleasure between the two methods are equal.

The Expression, it is not lost when we use drawing computer programs. This speeds up the execution proceeding and only facilitates the presentation. When drawing, independently of the chosen method, "feeling" and "Imagination", they are clear in each image, showing the intentions of its author.

All the process of conception, of a project, consists of a long series of imagination and of the attempts of the designer, to transform a set of traces, in a corresponding form, the material and the reality.

In result, for the majority of people; expressiveness and invention, represent the idea of drawing. An at the same time, what differentiates the drawing made by hand to the drawing made with computer programs is expressiveness and felling/emotion.

The concept in architecture and it results is in first place art and then a science. But with the indiscriminate use of the computer, without rules and aesthetic principles, architects could become “anti-aesthetics”.

The conscience of the use of computer drawing programs must be always allied to the understanding of that it is plus a tool of register of our ideas and intentions. In contrary, we will fall in the triviality and the projects will be only what the computer allowed and not what the architect wants.

The virtual reality becomes the way most advanced of representation of one project. For the observer it will be same thing to observe a perspective made by hand, or by a drawing computer program.

Virtual Reality is considered one of the most exciting technologies today, constantly evolving and improving.

The expression exists! However, in the virtual moving world, the receiver covers all space in constant movement and obtains an experience that in the static images in 3D never will obtain with as much perfection.

With this considerations the team of groups, use all kind of technologies to input ideas and show the projects proposals.

2.1.1 The Methodology and Approach

As first step of the concept methodology, drawings and sketches was understood as form of communication, and students must understand the distinction between occasional and intentional. They draw, observe and represent the objects at hand and body scale. With that they start drawing memories from the city, with urban image and sequence analysis from the “place”.

Then the group started to understanding the evolution of architectonic form, at the same time, teachers are challenging the students to the critic and the aesthetic analysis of the architectonic issue in its different significances: theory, criticism and aesthetic. Developing theories and different ways of feeling the project, according new perspectives of doing projects. Acquaint the hermeneutic diversity in dimension as in bounds and approaches.

In an initial reading faced with the challenge of an abstract plan, starting from the zero, the students opted to approach the different parts of the drawing on the basis of the line and it movement. At this moment they have a concept.

The intention and approach is to transform students as self-made man, they were formed like an architect traveling, drawing, painting, photographing, measuring, and writing. With this attitude they will starts felling an aesthetics emotion, and a creativity way of thinking. The project will appear!
2.1.2 The workshop and Goals
In the website of the workshop programme all participants could read the general idea for the process: “Universities has always contributed significantly to the advancement of disciplines, which thrives on visions of individuals and strength of team-work approaches. In the last century, universities were constituted as cities fragments, influencing their integral development and contributing with their characteristics. Gradually, many of them became isolated from the city, even long before the idea of a university campus appeared. Today, even if located in the street frontage, too often is the university edifice too hermetic to contribute to the city itself, to enrich it with emerging new ideas. At the same time it becomes clear that not only the traditional distinctions between disciplines are increasingly questioned but also the demarcation line between the Academia and the Outside. Thus, one of the important tasks is to bring back the broadly understood traces of university’s presence, its stimulating intellectual ferment, its artistic, architectural and scientific ideas into the city – its landscape, perception, its social and spatial characteristics. Interwoven with the city space they become a means of sharing fascinating concepts, change the perception of reality enriching it with new contexts, serve as a tool of education and social change.

The idea of the programme is to explore how the phenomenon of growing interdisciplinary approaches and tendency toward mutual interrelation of art, architecture and science could become visible in the city itself. During the realization of the workshop the students will develop installation/public art/architectural landscape/ that will show/use/refer to the transdisciplinary nature of Art & Science and work out how the concept could manifest itself in the city space. The theoretical essays, descriptions of approaches developed during the workshop as well as design projects will be disseminated in frames of the 2nd conference Art and Science in 2012 (Art Line project) as well as published in a book Art & Science – synergy of technology and art in the city spaces.” [3]

2.1.3 Responsibility of a History to Preserve
One of the principals goals of this methodology, is to input the idea of teaching urban regeneration in addition to being a project, with all the inherent constraints, is even more challenging because there is still the responsibility of a history to preserve or simply maintain present some of the important memories.

During the design experimentation, Teachers give some lessons and clarify the meaning of the project and what are the goals. Students must went to the place and feel it.

“No representation is sufficient, nothing can replace direct experience. We have to go ourselves, we have to be included, became and feel part and measure of the architectural organism…”[4]

The technological advancement transforms the teaching of architecture. The student of architecture uses new digital tools with the same ease with that utilized the conventional (pencils, paper, ruler, etc.). This means that the architecture, as taught and practiced until the end of the 80 years, disappeared? There is always an initial inertia, where new technologies, and when these new technologies are associated with new ways to "see" the World, and involving the emergence of a spatial reorganisation of point of view of form, the challenge is, of course, a lot of.

Future architects, lead with an informational and cultural baggage in constant update. Is this update that confuses the more nostalgic. The teaching methods and curricula will undoubtedly be adapted and updated for new scientific/pedagogical methods. Architects are in the centre of digital age, and teaching or researches push all of us for the world of globalization.

3 Community Participation
The aim was to make the place user friendly. To do that, all groups, in the intervention area, must talk with people u usually use that area. During all process, the team must talk with the community and share experiences and ideas.

On the end of creative process, again, they must talk and show the final project, for discussion with the public in general, and with the community, including the others members of the others groups. They organized a conference, and with power point presentation and increasing with some performance, they show the result of them work, to the international studios teams.

4 The Project Details
We cannot talk about visual perception without speaking of the drawing. What is the drawing? The design is a fundamental instrument in the functional and planning methodology in architecture, in the Visual Arts and design, "the design is probably the..."
form of expression that best sums up our relationship with the world. It enables us, with the mental preparation, developing ideas and discovery of what still we do ourselves. "[5]

All groups, individually, went to outside do interpret the space and the intervention area. According them felling’s, they started doing some sketches, over the plan, to understand the most important areas for the project. To do that, they talk and make some marks with colours.(Fig. nº 1

They started to understand the meaning of the streets and walkways.

Fig. 1 “Plan of the intervention area”

While all groups, start writing in small papers some words, ideas and sketches about what they fell. (Fig. nº 2)

Fig. 2, “Planning the Project; first steps”

In this first level, the team make several meetings and do presentations of feelings and emotions, about the place. All groups do the same and discussed the different point-of-views and paradigms. They just can talk or do performances (Fig. nº 3). Starts the discussion time!

They were outside they took pictures and made little movies. They interpreted the space.

In the second level, all people involved in this international studio, starts learning from individual drawings ideas. Emotion it is reflected in all sketches and presentations.

While, teachers give some individual conferences about parallel problems, according the message that they intended to pass. The thematic of the conferences are around what it is architecture, perception, the meaning of public objects of art, new methodologies of conceiving projects and sow one. The students learn the design techniques and developed the project based on the experience and knowledge gained during the visit to the intervention area and to the lessons given by the international team of teachers.

5 The Project Details

The final work it was presented in the Mini Symposium with the results of the international workshop. The groups could made presentation using video, power-point, models, performances, and portfolio panels. They transform the space; they make the place user friendly. As an example we can see in (Fig. nº 4 and Fig.5) the proposal of the 2 nd group, the transformation in front of one of the buildings, near the university, and applying sculptural objects, originated by a need to guide people into campus direction.
virtual world based on thought, streamlining, at the junction of factors on which it bases its perception, building a reality that, at the outset, it is just made of ideas and will pursue, as will passing to the paper, giving a first life to its virtual world, which could wipe out or not materialize. [6]

Third conclusion:

Aesthetic emotions arise in response to formal properties, creating empathies that lead us to joy or sadness.

Forth conclusion:

The aesthetic perception of a particular architectural environment depends on a number of perspectives. In this sense the Virtual reality has become a fundamental tool in the context of perception. The tool that chooses to work will influence the thinking of who draws and who observes the final design.

Fifth conclusion:

Aesthetic experience can be defined as the time at which the subject establishes the relationship with the subject, this relationship, in which the body and all senses are intertwined. As Umberto Eco has to exist a dialogue between the subject and the object. [7]

First Conclusion:

As we can understand with this international studio, Methodology, the drawing, the project and after the subject are concepts inherent architecture and not only, are also inherent in the design and the arts. Starts for us arise the idea, thought, and the first step will be the design or the Indian ink on paper, even if badly done and sometimes hesitant. Then we move on to the computer or manual drawing, which today is to be an essential tool in planning methodology.

Second conclusion:

We can consider the whole process in architecture as virtual; the role of an architect is a virtual role, because this must be endowed with the ability to imagine the whole process virtually. I.e. creates a virtual world based on thought, streamlining, at the junction of factors on which it bases its perception, building a reality that, at the outset, it is just made of ideas and will pursue, as will passing to the paper, giving a first life to its virtual world, which could wipe out or not materialize. [6]

Fig. nº 4, " Pixel stream made of pixels of water, grass and light panel that would light when you step on it... or if already be shining - that would escape from you giving students invitation to follow it."

Fig. nº 5, " Convert undervalued city elements into living pieces, applying on the interior side of the modules, panels with interactive and useful information. The public himself can actually update the information."

References:


Bibliography:


