



Questioning the Obvious: a resource for the creativity development of first year Architectural Students

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ABSTRACT

This study explores new perspectives for transferring and promoting creativity in the teaching of “introduction to architectural design”. The rationale is based on the hypothesis that “questioning the obvious” is a resource for developing creative thoughts in general and consequently that of the first-year architecture students in particular. The study adopts creative questioning as a framework for questioning the obvious within the studio of introduction to architectural design. As a demonstration of that, it presents a teaching approach of introduction to architectural design, which practices “questioning the obvious” from “[Location Redacted for Blind Peer Review].

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1. INTRODUCTION

According to Edward De Bono (De Bono, *Serious Creativity*, 1992), *Creativity* is a serious phenomenon and it does not necessarily have much to do with extraordinary phenomena, a long-time wrongly associated with this skill. Creativity has revealed, so far, many of its secrets thanks to the significant progress achieved in cognitive, design, and education sciences. This work focuses on educational practices that may resource the development of students' *Creativity*, particularly those of the first-year architecture studio. Among a multitude of practices that prosper in education and design sciences, this study targets a rather old tool that shown to be a critical step in the creative process. It is "Questioning" and particularly "Questioning the Obvious", which we admit by hypothesis (Author, 2017) as a resource for the development of individuals' creativity and consequently that of first-year architectural design students. Three principal types of questioning are invoked in this study, namely Strategic Questioning of F. Peavey (Peavey, *Strategic questioning an approach to creating personal and social change*, 1997), Effective Questioning of Vogt, Isaacs & Brown (Vogt, Brown, & Isaacs, 2003), and the spiral of Creative Questioning of E. Landau (Landau, 2007).

The paper comprises three parts. In Part One, are presented the two first types of questioning mentioned above. The objective is to explain what they consist of and how they may be useful in teaching the introduction to architectural Design. The second Part of this paper deals with the tool of "Questioning the Obvious" (Author, 2017). It rationalizes to what extent we may consider this tool as a resource for developing first-year architecture students' creativity. It shows how Landau's Model of the "Spiral of Creative Questioning" (Landau, 2007) can provide an appropriate framework for both teachers and students, screening the way the spiral may be useful in teaching of introduction to architectural Design. The third and last Part of this paper is an empirical analysis dealing with results from an application of "Questioning the Obvious" within a pedagogical approach for teaching the introduction to an architectural design studio in the "[Location Redacted for Blind Peer Review]." The analysis concentrates on the possible ways of application of such questioning and its impact on supporting teachers' pedagogical efforts and enhancing students' creative skills. For its end, the paper underlines the importance of Creativity as a key skill in teaching the "introduction to architectural Design" and try identifying the perspectives of its development.

2. MATERIALS AND METHOD

A. Strategic Questions, Effective Questions

Questioning is a provocative act that engages the mind in search of useful answers. The more effective questions you ask the more likely you will find useful answers. This is why, as teachers, we have to ask our students many questions, and we expect them to find answers, of course, but also to ask more questions in turn. The effectiveness of the question is highly sought after, so educators and pedagogues need to master the parameters of construction of the questioning, its scope, and the hypotheses it is likely to induce. For R. Sternberg, indeed the question comes before the answer in the logic of reflection, which is why:

"Schools need to teach children how to ask the right questions (questions that are good, thought-provoking, and interesting) and lessen the emphasis on rote learning". (Sternberg R. , 2007)

Asking questions is an easily accessible yet significant resource for developing one's knowledge. This act stimulates Creativity, provokes it, and thus resources it. Paradoxically,

the contemporary education system places greater importance on finding the “right answer” rather than formulating a “good question” (Vogt, Brown, & Isaacs, 2003). Questioning facts, hypotheses, results, suppositions, presumptions, and accepted beliefs or obviousness opens the way to investigation. It transports an individual from a state of acceptance, satisfaction, and stagnation to a journey of intrigue, discovery, and prospecting. Our perception of the world, things, and even the meaning we give to them depends on the questioning (Adams, 1997) that we make. This is why it is so important to know what the questioning itself depends on. What are the processes and rules of its construction? How can we distinguish a good or effective question from a less effective one or not effective at all?

Nobel Prize of physics winner Arno Penzias, during a conference organized by the Fast Company magazine, stated:

“Change starts with the individual. So the first thing I do each morning is ask myself, ‘Why do I strongly believe what I believe?’ Constantly examine your own assumptions.” Quoted by (Vogt, Brown, & Isaacs, 2003)

Several scientists and researchers such as Einstein, De Bono (De Bono, *Serious Creativity*, 1992), Landau (Landau, 2007), Sternberg (Sternberg R., 2007), Peavey (Peavey, 1997) and many others agree on the importance of questioning and its construction for the creative process. With this regard, F. Peavey introduces the concept of *strategic questioning*, which is intended to provide substantial clarifications and openings on subjects it deals with. Strategic questions, she says, are a powerful tool for change because they help people discover their strategies for change. Peavey points out that, strategic questions require specific listening and provoke change, both at the listener's level and the one who asks, because they allow new points of view to be constructed. These questions, which are different from other types of questions, invite ideas to move and open up new possibilities as they take into account both old and new information gathered in the search for answers. They appeal to a special kind of Creativity, which Peavey says can forge new strategies to solve the challenges of today and tomorrow.

Vogt, Brown & Isaacs present another concept they name *effective questions*. The construction of these questions requires particular attention because it must guarantee that their scope is in line with the needs that generated them. It is this agreement that would make the questions posed effective (Vogt, Brown & Isaacs, 2003). The assumptions that we communicate through the questions are as important as their construction or scope. Identifying, examining, and becoming aware of the hypotheses that are explicitly or implicitly supported, and therefore underpinned, by the questions we ask are important and very useful steps. Each teacher, in questioning his students, necessarily sets himself, beforehand, pedagogical objectives he needs to achieve. Three dimensions condition, therefore, the effectiveness of our questions. They are:

- a) The construction of the question, in terms of supports or referents, which must be relevant and approved, and in terms of structure or even formulation, which should be self-sufficient and not need any effort for explanation;
- b) The scope of the question, which concerns the direct or indirect impact of the question asked on the knowledge currently available or that to be generated in the future;
- c) The assumptions that the question may convey that we should be careful about. Remember what E. De Bono recommends (De Bono, *Serious Creativity*, 1992), saying that it does not matter whether the hypotheses seem unreasonable or far-fetched. The most important thing is to generate several and diverse ones at the same time. The goal

is to allow us to look at the data of the present with different eyes and open new perspectives for thinking and solving the problems we are facing.

- d) Transferring the importance of these three dimensions to young learners would likely bring them to ask questions that are both strategic and effective. Teachers would favorably insist on prospecting and varying angles of view in processing the information necessary to formulate or search for answers. This would enhance learners' creativity and help them make the difference between a good question and not efficient one.

B. Questioning the obvious

The present work assumes "*questioning the obvious*" as a resource for the development of creativity in general and particularly that of the first-year architecture student (Author, 2017). The "resource" is a means to get out of embarrassment or to improve a difficult situation. It is precisely in this meaning that we consider "*questioning the obvious*" as a tool for helping the emerging of creative ideas that are new, useful, and innovative. First, we debate on what extent we admit, "*questioning the obvious*" as a possible resource for creativity. The goal is to investigate if "*questioning the obvious*" contributes to resourcing the creativity process, and if so, how would it occur, and what would be the possible stages?

2.1. Questioning the obvious, a resource and a tool for creativity: to what extent?

Back in 300 B.C., the Greeks already invented the concept of "*epoche*", which means the suspension of any prior judgment. This mental attitude invites us to consider all judgments, without any exception, as a way to reach the truth. *Epoche*, actually leads to what E. Husserl calls, in his transcendental phenomenology, the phenomenological or gnoseological reduction, which means that with the *epoche*, we can reach a knowledge about things as they are themselves and not, only, as they "obviously" seem to be for us. Put this way, the *epoche* comes to support our hypothesis that "*questioning the obvious*" can be a resource for the development of creativity. Moreover, suspending any prior judgment supposes not to take anything for granted, which requires an attitude that is not only vigilant but also interrogative, about the established consensus and perceptions largely accepted by all.

Thereby, we can consider the epoch as a resource for creating and developing knowledge. It helps individuals challenge their intrigues and improve the level of their knowledge. From its side, Creativity, calls upon existing knowledge and leads to new knowledge. It generates new ideas, concepts, objects, and/or facts. The resulting output is one of the possible answers to the questions asked, beforehand or even constructed along the way, i.e. in the course of the creative process. The *epoche*, as a research posture, has a cognitive purpose. The same applies to creativity, which is closely related to cognition as a process and to knowledge as a resource and an outcome. The *epoche* calls for a continuous questioning of all our judgments, including those accepted by all. It leads us to question the obvious, those things that are irrevocable and perceived as self-evident.

Questioning the obvious leads to no longer admitting it as it is and thus allows us to reconsider it, which can lead to its negation and therefore to its destruction. This is how the change of perceptions becomes possible and creativity can emerge. G. Altshuller the inventor of "TRIZ": Theory of Inventive Problem Solving said that each inventive solution is necessarily going along with the destruction of old notions. (Altshuller, 1989, Translated from Russian on 09/07/99: Yulia Stien Completed from English on 17/05/02: Thomas Eltzer). He is not the only one to think so; the great painter Pablo Picasso joins him in

asserting that any act of creation is above all an act of destruction (<https://www.quora.com>). We believe that *questioning the obvious* contributes to improving the state of knowledge of individuals and allows them to develop new knowledge. It is, precisely, in this perspective that we admit this type of questioning as a possible resource of Creativity because as much as Creativity calls for knowledge for its inception, it also produces knowledge at the end. Given the great concern in educational sciences to find ways to develop systematically the learners' creativity, we are very interested in understanding to what extent “questioning the obvious” could contribute to winning this challenge.

2.2. The spiral of creative questioning (Landau 2007): a framework for practicing and teaching “questioning the obvious”

Here, the interest relates to the processes of questioning the obvious and the methods of its provocation. The aim is to examine its effectiveness, in the development of the creativity of first-year architecture students, and to identify its parameters. For this work, Erika Landau's spiral of creative questioning (Landau,2007) offers a model and a referent that makes accessible both practicing and teaching creative questioning.

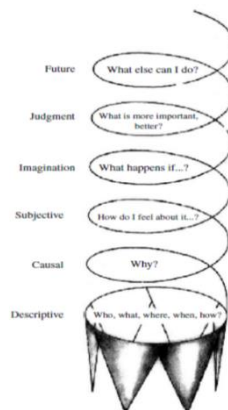


Figure 1 Spiral of creative questioning (Landau 2007)

As it is structured, Landau’s spiral provides a framework for the questioning to progress. The idea is to adapt this spiral for teaching initiation to architectural design and to use it as a basis for constructing guidelines for questioning the obvious, for both the student and the teacher in the first-year architecture Studio. While all teachers use and practice questioning, one might ask if they master sufficiently the art of questioning in their everyday teaching activities. To be so, the question formulated in its three dimensions: construction, scope, and assumptions, has to meet some reliable criteria that guarantee its relevance, effectiveness, and strategic quality. This would necessarily enhance the creativity of the students and make the teaching or training provided more creative (Vogt, Brown, & Isaacs, 2003; Peavey, 1997).

2.3. In what way, the spiral of creative questioning, be useful in teaching of introduction to architectural Design?

Landau's spiral of creative questioning provides six levels of questioning progress:

1. The first level is descriptive and solicits observation. Its questions relate to the current available knowledge and deal with *Who? What? Where? When? & How?* These questions allow a child who is new at school to describe a situation in the

present. For this study, we assimilate the first-year architecture student to this child in what architecture is as new for him as the school is for a child. We would precise that the reference of this work in terms of architectural education is the “[Location Redacted for Blind Peer Review]” educational system, where students who have obtained the baccalaureate can have access to the studies in Architecture without any specific prior preparation. Thus, just like a freshly schooled pupil, this new student begins his or her initiation to architectural design in the first year in the initiation to architectural design Studio. E. Landau states that through the questions related to the descriptive level of the spiral, the student learns to observe and gains the confidence to understand the situation or the problem he is facing.

2. The second level of the spiral concerns causality, involving the questions of "Why", which are closely linked to the questions of the first level. During this stage, the first-year architecture student collects additional information about the situation or the problem he is facing and comes closer to understanding it. These first two levels allow students to describe and perceive objects and bring them into relation coherently. Capturing these relationships is precisely what provides the student with the materials needed for starting reflection and bringing solutions to the issues he is facing. The student can then ask himself about the components of an architectural façade for instance, figure out the arrangement that connects these components and the usefulness of each component as well as its typology. He transposes these same questions to the components of a building, then to those of a street corner or any architectural system that he is studying.
3. With the light shed on the studied object, the student can access the third level where he begins to position himself as a subject. At this stage, the questions start to be subjective. They express the posture of the subject (who asks the questions) about the object of his questioning. Such questions are typically: What do I already know about this subject? How should I react? When and where have I seen or experienced something similar? These questions, according to Landau, often require an emotional engagement, which we can reach through the first two levels that provide the learner the strength to address the subjective involvement necessary for creative questioning.
4. Once the objective, from the previous three levels, is accomplished, students can then approach the problem from different angles. They can engage in associations and analogies that encourage their flexibility and motivate them to get more involved in questioning both with their minds and with their feelings. It is at this point that, Landau says, the circle of questions opens up and becomes spiral and students dare to go beyond what is commonly familiar and secure.
5. By managing to accomplish the prior simultaneous involvement of mind and feelings, the student is now ready to proceed to the questions of imagination, which is the next step on the spiral. This is the moment when different alternatives of answers can guide to possible solutions. The questions soliciting imagination are typically: What will happen if we link A to B? “Now additional courage is needed—to use imagination”, says Landau, “Therefore, we ask him (her) the following questions: “What else interests you about this problem? What can you do with it”?” (Landau, 2007). Only at this stage, judgment can come into play and students can exercise it. If they do it earlier, they will limit the raw materials of the thinking process by the relatively small flow of associations between the intellectual and the emotional. In teaching “the initiation to architectural design”, we commonly equate

this association of intellect and emotion with the duality of "rationality/sensibility". These associations are useful, according to Landau, in linking the individual reasons regarding a problem to the alternative logical solutions to address it.

6. For the last level of the spiral, Landau recommends keeping the students in questioning mode to prepare them for addressing the continuity between the present and the future, despite that we already may have a solution. Landau thinks it is stimulating to keep curiosity's flame always burning in students. It is important, she says, to continuously provoke students' curiosity to motivate them to ask new questions and discover other alternatives. The author proposes to build questions that simulate future scenarios helping students become more imaginative and more able to figure out new alternatives. By asking, "What else interests you about this problem?" or "What more can you do about it?" students can face new challenges that activate their curiosity and stimulate their imagination. Such questions can also help students discover their abilities and limits and call on the hope in their hearts, according to E. Landau. This hope puts students face to face with their accomplishments and gives them a sense of participating, in some way, in the future. Students are then encouraged to make progress, according to their abilities. This is a pleasant encouragement that helps them to accept the fact that they may not understand everything, but can still ask questions about what is astounding to them (Landau, 2007). This makes a challenge for students and a basis for asking questions, imagining, and making the future real, and for the author that is what may ensure continuity between present and future.

However, this continuity does not happen to exist systematically in all cases. Referring to De Bono (De Bono, *Serious Creativity*, 1992), at times, the future is not in continuity with the present. The solutions to be found then, would rest on hypotheses, which even the construction, cannot be based on the elements offered by the present. It is at this moment, De Bono says, that we most need Creativity to generate new hypotheses that will open up new possibilities.

C. Questioning the Obvious as applied within an approach for teaching the initiation to architectural design

The obvious is the sum of all perceptions and beliefs that are familiar and common to all individuals or a certain community. They result from collective judgments and reach, in people's eyes, the level of certainty, even if their basis does not emanate from deep reasoning. These certainties give a sense of security and usefulness to the individuals who accept to adopt them without the slightest ambiguity and make use of them in building their perception of things. However, in case the expected solutions go beyond existing knowledge therefore would require special imagination. It follows that the obvious, as a secure basis for thinking, is not sufficiently useful. The beliefs and perceptions we might have about things, in this case, have to break the boundaries of what we know.

In this respect, challenging existing beliefs and perceptions would be particularly helpful, since architectural design is about imagination and the creation of new spaces. Architectural projects should not only match users' needs but also take into consideration all related constraints. They should offer them a stimulating and rewarding life experience. That would emanate from the designed space's quality and the relevance of proposed solutions. Indeed, in the architecture field for one project, different alternatives of perceptions and considerations can lead to a limitless number of possible solutions. There is no unique or right solution but a multitude of good ones. That is what makes acceptance

for things as they are or as thought by everybody not very helpful for architects to design innovative and creative projects. It is for that reason, that we think questioning the obvious encourages architects to pass over what everybody knows or admits and so, helps them to design innovative projects. That is what motivates our belief that architectural design learners will reach more effectiveness in design skills if we teach them how to question the obvious from the earliest years of their curriculum. For this study, the spiral of creative questioning represents a possible and appropriate framework, not only for learning to question the obvious but also for teaching it in the initiation to architectural Design.

3. RESULTS AND DUSCUSSION

3.1 Application case: A pedagogical approach of introduction to architectural design

The first-year architectural design student is, like any other individual, a user and a consumer of architectural space. She/he arrives at the school of architecture with a life experience and prerequisites that induce obviousness, acceptance, and prejudgments. Questioning the obvious is neither systematically considered nor commonly practiced through the traditional curricula. At “[Location Redacted for Blind Peer Review]”, the first-year students start their introduction to the discipline of architecture, and to the profession of the architect over one academic year. The great part of this introduction happens in the architectural design studio, which includes three learning phases:

1. The observation and representation of the environment: that of the immediate environment where the student lives and evolves and that of the built environment.
2. The apprehension by reading and analyzing architectural objects to grasp their components, their links, and their organization's rules.
3. The shaping of architectural objects: Learning to design a architectural small project, not exceeding an area of 150 m², from data related to its program's activities, project site, and characteristics.

The following table sets out three stages of a teaching approach of introduction to architectural design at “[Location Redacted for Blind Peer Review].” This approach is the result of a close collaboration of four [architects’ teachers’ teams in which the author took part as an architectural Design Studio teacher first year, for 11 years from 2008 to 2019.

Table 1. Sets out three stages of a teaching approach of introduction to architectural design

Teaching's stage	Target competencies
I - Ability to observe and represent one's environment	<ul style="list-style-type: none"> • Introduction to representation tools. • Mastery of the rules governing geometric forms and their modes of articulation. • Manipulation of geometric shapes in drawing and modeling. • Stimulation of curiosity and creative capacity. • Observing, identifying, and transcribing forms
II- Ability to analyze and recognize the components of one's environment: Introduction to architectural reading	<ul style="list-style-type: none"> • Observation, analysis, and transcription of the built environment • Mastering of proportions • Introduction to conventional means of representation: orthogonal projection, axonometry, models. • Development of visual sensitivity to dimensions, proportions, textures, light... • Initiation to the human scale.

Teaching's stage	Target competencies
	<ul style="list-style-type: none"> • Analysis and understanding of an architectural object
III- Ability to shape an architectural object: Introduction to Architectural Design	<ul style="list-style-type: none"> • Acquisition of basic notions of architectural design. • Consolidation of the knowledge acquired in representation to best express an architectural project. • Introduction to architectural design. • Synthesis of the content taught throughout the year.

As far as these phases appear to be separate, the boundaries between them are far from being impermeable. As with all forms of learning, there is always a need to go back and forth to ensure that students acquire the required skills. We believe that the first great obstacle met by Design's architecture teacher of first-years is that students are not enough conscious of the complexity of the architectural facts. It is precisely, the way of making them understand this complexity in all its dimensions that constitutes the difficult part of teaching the introduction to architectural design. Teachers of the first-year studio of architecture design, have to tell their students that the studies they are beginning will change their way of seeing things. They have to tell them also; that they will need a great deal of open-mindedness to ensure their introduction to both the new field of knowledge and the new profession. They have announced clearly to them that in the architecture field, there is no single good answer but there are an infinite number of possibilities for doing, thinking, and concretizing. Teachers of the first year's architectural Design Studio should make students understand that in architectural design direct application of rules is not enough because architecture involves imagination, thinking, decision-making, and choices to do. They have to explain to them that the ultimate goal of architectural education, is to learn how to design useful quality spaces and stimulating ones and how to make them real.

Regarding us, the second major difficulty of teaching introduction to architectural

Figure 2 Teaching steps, teaching approach of introduction to architectural Design, Author and collaborators, from 2008 to 2019 at "[Location Redacted for Blind Peer Review]".

design is that it requires novice students to reconsider their relation with what is around them, particularly about the built environment, which they used to know. Because, they will be a part of those who design it and will never be simple users of it, as everybody does. This reconsideration, as we see, cannot happen without questioning, what students already know about architectural facts and that everybody knows without feeling the need to challenge it. We believe that questioning what everybody sees as the obvious in architecture would engage architecture's first-year students in a process of quest, discovery, and understanding. An understanding that they will reach through observation, analysis, and synthesis. As well as through the combination and recombination of existing components to give shape to new objects and thus start the practice and learning of architectural design. The first stage of introduction to architectural Design as presented in the table above, aims to develop skills of observation and representation of students. It targets to let them acquire the ability to represent their environment, as they perceive it. That allows them to describe it as a whole and in its details. We take this as corresponding to the first descriptive level of the spiral of creative questioning of Landau. To make students understand how are thought and built architectural objects and allow them to pass beyond what everybody knows or believes knowing, we encourage them to question the elementary component of architecture. What makes such walls, windows, steps,

thresholds, columns, doors, or any other component of a facade or building, appear that way? Why does it have such height, length, color, or texture? What connects it to the other components of the facade or to the object to which it belongs? How has this connection become possible? What role does it ensure?

We are convinced that questions of "What?" and "How?" would make understanding more fruitful if, they focus on what manifests itself without difficulty to the senses thus on what is obvious for all. In addition, this understanding would be more fruitful if questions were asked based on hypotheses with a wide opening to propose new possibilities and engage architecture's first-year students in the experimentation of new perceptions. E. De Bono (De Bono, *Serious Creativity*, 1992) thinks that it does not matter whether the hypotheses appear unreasonable or far-fetched. The most important thing is to generate several and diverse ones at the same time. The goal is to allow us to look at the data of the present with different eyes and to see things in other ways. This is why, he recommends investing in generous speculation to forecast, construct, and create new hypotheses that support the creative process. That is why, in our pedagogical approach to introduction to architectural design, we try to teach students to construct and generate wide-open hypotheses.

3.2 A way to initiate students to question the obvious in teaching introduction to architectural design

Hereafter are two examples of students' works in the exercise of representation by sketching. In our pedagogical approach, we program that exercise just three weeks after the academic year starts. In that exercise, students, in addition to making sketches correctly drawn according to the rules of perspective, should communicate their perception of the place they transcribe with a subjective representation drawing. The aim of this exercise is twofold, on one hand, it allows the students to learn the conventional drawing in conical perspective mode, and on the other one, it offers them the opportunity to convey graphically their own experience of the place to represent. This exercise allows them to question everything elementary in the place. They challenge what relates to its components, those of the built environment and those of its occupation through activities and moving of people who are there and even sounds, smells, lights, and all that may be a part of it.

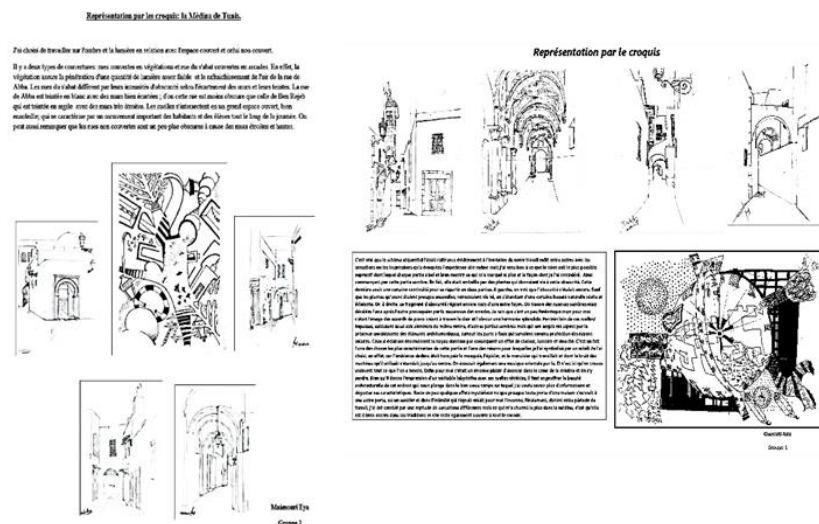


Figure 3 Examples of works from the exercise of representation by sketching, teaching approach of introduction to architectural Design, Author and collaborators, from 2008 to 2019 at "[Location Redacted for Blind Peer Review]"

Such early exercise in the studio of introduction to architectural design affects students' perceptions and attitudes. It changes their way of observing and watching what is around them, particularly all that is about the built environment and the way that is lived. It allows them to develop their observation sense and to go beyond what everybody sees and accepts. This exercise allows them to question the elementary components of what surrounds them and to transcribe their perception of things they observe and experience. This questioning corresponds to the third level of Landau's spiral of creative questioning when the student gets involved in subjective questions and calls upon his imagination. This pedagogical experience encompasses the first three stages of Landau's creative questioning: 1) What? How? Where? When? Who? 2) Why? 3) How do I feel? What do I know about it? It frees students from the fear of representing and using different tracers or media and somehow breaks the students' mental inertia (Khomenko, 2006). This experience allows them to start learning architecture with fewer prejudices and gives them enough courage to question the obvious that everybody accepts, and knows.

As the fourth and fifth levels of the spiral of creative questioning relate to imagination and judgment, we correspond them to the second stage of our pedagogical teaching approach of introduction to architectural design. That stage is about the ability to analyze and recognize the environment's components. Introduction to architectural analysis allows students to understand how designing architectural projects may be and lets them closely touch on architectural fact complexity. It involves their judgment sense because, when they analyze architectural space, students learn to construct a hypothesis of architectural composition and have to evaluate its coherence and demonstrate that in their analysis. We notify that introduction to the architectural analysis exercise that we propose based on visits and reading of architectural real projects. The exploration and reading of the chosen project constitute a main part of the analysis students have to do. We ask them to design an analysis strategy and to represent it by drawings. This stimulates their imagination and their creativity and pushes them to deepen their spatial exploration and to be aware of any architectural component they meet. Because it involves students and their own spatial experience of the place they visit, we admit introduction to architectural analysis corresponding to the fourth and fifth levels of the spiral of creative questioning. This learning step convokes in the same time students' affective and intellectual sense. It stimulates their imagination and pushes them to understand, choose, decide, and evaluate the architectural composition hypothesis they construct and suggest.

Moreover, analytical capacity allows individuals in general and particularly first-year architecture students, to question elements of the environment where they evolve and what the obvious belongs. The analysis is the favorable framework to develop the observation and representation abilities of first-year architecture studio students. It starts from descriptive actions to reach a comprehension of analyzed objects. Analysis as a cerebral act, allows individuals to understand phenomena perceived, only, about their knowledge or that existing in their environment. Even though analysis constitutes a major ability to develop in the teaching of initiation to architectural design, it is not enough to allow students to be creative. That is why the introduction to architectural analysis in the pedagogical approach we present does not end with an understanding of the links between object's components or their organization. Our pedagogical approach convokes hypothesis in the introduction to architectural analysis. Because hypothesis provides opportunities to notice what we could not previously notice (De Bono, *Serious Creativity*, 1992). Initiation to architectural analysis is for our pedagogical approach, an opportunity for first-year students to learn to generate and build architectural design hypotheses and experiment in

the early stage of their educational curriculum one of the stimulating tasks of architectural design. More, for our approach, we admit analysis, in the teaching of introduction to architectural design as an evolutionary process including different steps and leading to elaborate architectural composition hypothesis. We present to students an analysis grid as a canvas that guides them in their analysis. Below is the analysis grid and the model of the analysis process that we propose to our students.

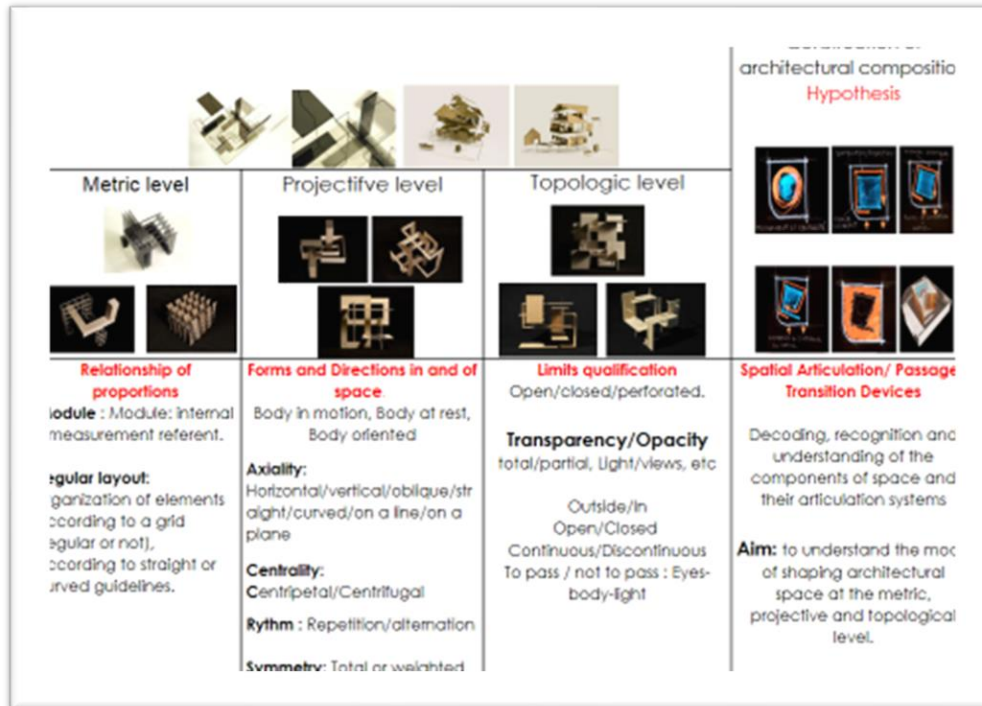


Figure 4 Introduction to architectural Analysis: Analysis grid of teaching approach of introduction to architectural Design, Author and collaborators, from 2008 to 2019 at “[Location Redacted for Blind Peer Review]”

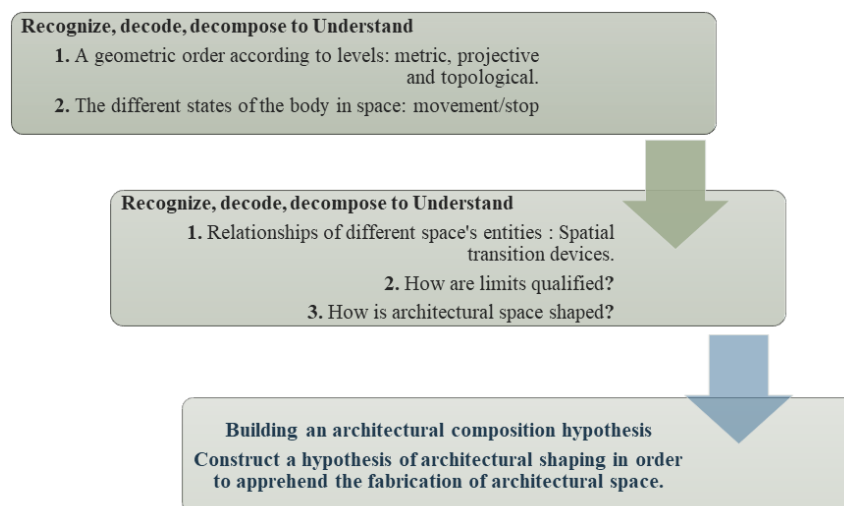


Figure 5 Process of introduction to architectural analysis, teaching approach of introduction to architectural Design, Author and collaborators, from 2008 to 2019 at “[Location Redacted for Blind Peer Review]”

The three levels on which is based this pedagogical approach are metric level, projective level, and topologic. The first one relates to the measure and quantity notion of and in the space. The second one concerns directions, orientations, and figures of and in

the space. While, the third and last one is about limits that embrace points, lines, surfaces, and plans that may delimit space. These levels touch on what appears clear to everybody and what anyone can recognize easily. That is precisely what this study considers as the obvious and incites first-year architectural students to question it. In the pedagogical approach presented above, we assume that students of first-year architecture need to lead a meticulous analysis to understand and apprehend what role the obvious plays in architectural space. Because it will allow them to catch opportunities that obviously may offer and openings that it may present. For that action, we invite our students to question elementary space's components. That includes access processes, space's proportions, space's organization, space's forms, and directions, transitions dispositive (stairs, vestibules, halls...), walls, ledges, withdrawals... To illustrate the outputs of such an analysis approach, here is a sample of analysis students' work:

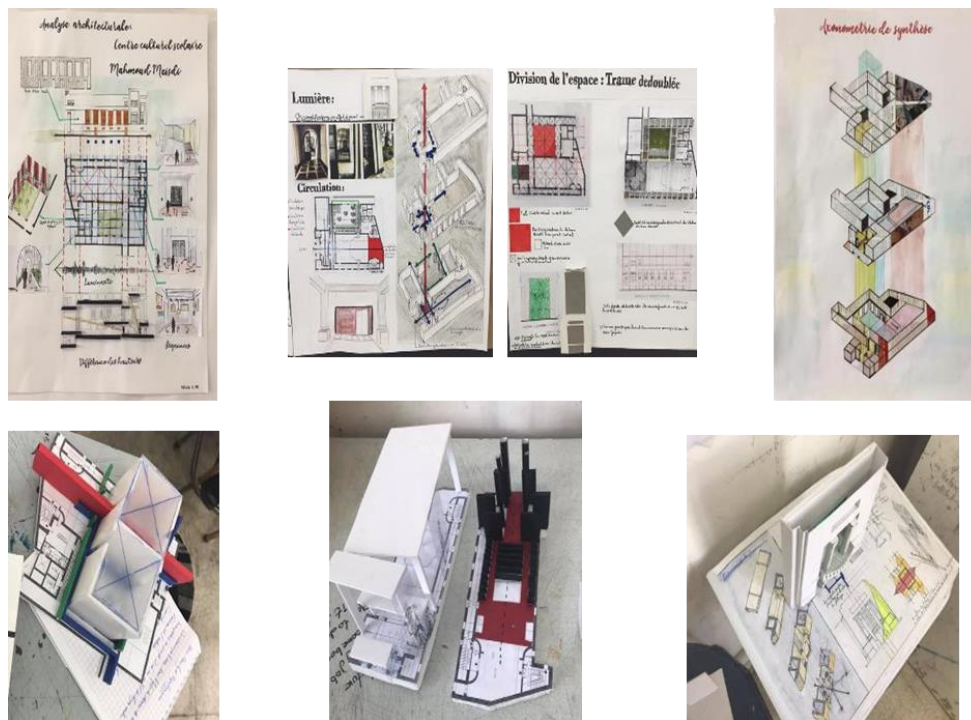


Figure 6 Samples of architectural analysis works of first-year architecture students, teaching approach of introduction to architectural Design, Author and collaborators, from 2008 to 2019 at “[Location Redacted for Blind Peer Review]”

3.3 How may we practice questioning the obvious process in the first year of architecture?

At this stage of our study, we will try to present ways of questioning the obvious take in initiation to architectural design. The aim is to understand to what extent could its early acquisition affect the creativity of first-year students. To question the obvious in the field of architecture would be to question what is most common and most stable in our eyes. This means questioning walls, and openings: doors, windows, passages, and staircases. In addition, that means questioning limits, whether low or high, horizontal or vertical or oblique, full and void, shadow and light, textures and colors... The list is far from complete because examples continue to embrace everything that an individual may take for granted in his or her daily experience of architectural fact.

As Landau (Landau, 2007) thinks, we believe that one of the roles that the teacher has to play is that of provoking the students' minds to keep them in a state of awakening and continuing searching. Indeed, in this sense, Ward (Ward, 2007) argues that although a teacher does not have complete control over the intrinsic motivation of learners, he/she can still help to spark their interest and curiosity. Teacher of initiation to architectural design works at the same time on knowledge transfer, intellectual and technical skills, and certain manual skills such as line quality, drawing, model making, rendering display management, etc. According to Sternberg and Lubart (Sternberg & Lubart, 1995), this particularity helps teachers become aware of and position themselves about the content of their teaching and the approach they adopt. These two researchers defend the usefulness of the distinction between knowledge and skills in teaching. About the teaching profession and especially that of the teacher of initiation to architectural design, this distinction is necessary, even a priority. We believe that initiating students to a new field, which is architecture, and to a new profession, which is that of the architect, requires a double pedagogical effort. The first one should guarantee first-year students' access to basic knowledge of architectural discipline. The second should ensure the acquisition of basic skills in the architectural profession. We believe that if teaching approach would gain effectiveness and efficiency if it is, mainly, focused on students' creativity development. One of the resources that this work proposes, for that, is questioning the obvious. We believe that the sooner this questioning begins, the more fruitful it will be. This belief finds its foundations in what questioning the obvious may bring to first-year students, in the teaching of initiation to architectural design in the pedagogical experience presented above. Our pedagogical approach proves that questioning the obvious supports access to architectural Design. It helps students to develop their observation sense, their representation ability, and their analytical capacity and offers them a framework to generate large opening hypotheses, which allow creativity development according to Landau (Landau, 2007), Sternberg (Sternberg R. , 2007) and De Bono (De Bono, Serious Creativity, 1992).

Questioning the Obvious, like any other questioning, reflects a willingness to understand a situation, solve a problem, or change a present state into a better future one. Creativity constitutes a privileged recourse when the expected change depends neither on the present nor on what it offers. Peavey describes the questioning that leads to change as "strategic". Questioning the obvious can be effective if it conveys, explicitly or implicitly, the innovative objectives it intends to achieve. It can also be so if it underpins relevant and innovative hypotheses that have broad scope. Thus, this questioning may rightly resource an individual's creativity and consequently that of the first-year architecture student. The earlier students adopt this question is adopted by the student, the more fruitful it will be for them. Analysis as a mode of thinking contributes to this adoption and helps to elaborate on this question. Creativity is based, among other capacities, on the analytical capacity that R. Sternberg describes as critical capacity. This term associated with thinking transcribes a singular mode of thinking, which is critical thinking, whose origin is none other than an awareness of the limits of human thought.

"Everyone thinks. Thinking is in our nature. But many of our thoughts left to themselves, lack objectivity and are distorted, biased, uninformed, or simply preconceived...The poor quality of our thoughts is costly, both in money and quality of life. However, the excellence of our thoughts must be systematically cultivated".
(Paul & Elder, 2008)

We think it is promising for teachers in general, and design teachers in particular, to focus more on creative ways of thinking and to invest in their mechanics. We would like here to refer to R. Sternberg's model of creative thinking, which basis on three capacities:

- ✓ Analytical Capacity: Critical thinking, also known as analytical, is the capacity that allows the individual to judge the value of his or her ideas, assess their strengths and weaknesses, and propose ways to improve them.
- ✓ The Capacity for Synthesis: this is the ability to generate ideas that are, at the same time, new, high quality, and appropriate. This capacity allows us to redefine problems effectively and to think with insight.
- ✓ Practical ability: this is the ability to translate theory into practice and abstract ideas into concrete achievements.

4. CONCLUSION

The Architectural design process implies these three capacities at the same time. It is a creative process since it is based on the generation of ideas, evaluation, and critical thinking. It invokes decision-making and triggers a certain "doing" immediately and/or in parallel. Questioning the obvious allows students to discover different ways of seeing and conceiving things around them, but above all, to take a fresh look at the architectural object and the built environment and to generate innovative ideas. For that, students have to reconsider their previous assents about what is around them. This reconsideration calls for critical and divergent thinking and requires preparation, hence a particular pedagogical caretaking on the part of the teacher. As Landau (Landau, 2007) thinks, we believe that one of the roles that the teacher has to play is that of provoking the students' minds to keep them in a state of awakening and continuing searching. Indeed, in this sense, Ward (Ward, 2007) argues that although a teacher does not have complete control over the intrinsic motivation of learners, he/she can still help to spark their interest and curiosity. For our side, the teaching approach that we present agrees with this belief. It puts students at the center of their learning path and aims to develop their autonomy for finding solutions, making decisions, and choosing. Therefore, it is an IBL approach, that bases its teaching on investigation, collaboration, and knowledge transfer.

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