Visualizing Relations in Architecture: A Pedagogical Approach

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Abstract: The aim of this paper is first to present the results of how first year students of architecture are exposed through an introductory course, (2nd semester, University of Cyprus), to ways of visualizing relations in time rather than objects in space. Further on, the paper will link such pedagogical approach to a broader thinking of making explicit relations, therefore performances in architecture and especially in “architecture as practice”. Usually students, through architectural education, become acquainted with means of representation of objects in space. This approach quite often, leads to “architecture as building” approach (object-based design) rather than “architecture as practice” one, (process-based design). The difference between the two is that the latter takes into account not only the object to design but also the systems of actors who are involved in the design process and their priorities. In order that architects find a decisive role within “architecture as practice” approach, they need to be able to visualize relations between project actors, their complex environments, their priorities and the design outcome. Such approach gives to the notion of performance a prominent role and of that of diagram an important tool in communicating such information, especially on how performative are relations between project actors in a process based design approach. To accomplish such objective the workshop uses the ‘cosmos’ of musical instruments. Every year the workshop focuses on different types of musical instruments in different kinds of context: wind instruments during the rehearsal of Cyprus State Orchestra, chord instruments in “Buena Vista Social Club” movie of Wim Wenders, percussions in “You Tube’ video music clips.

Keywords: Performative Diagrams, Performance, Architectural Education, Representation, Architecture as Practice, Process-Based Design, Visual Studies

Introducing a Pedagogical Method for Visualizing the In-Betweeness

When we look at a musical instrument, usually the first thing that comes to our mind is music and how it is played. At that moment, we “see” an interrelation between the instrument and how it could perform in relation to music. When we have the same instrument in our hands, the first thing that we would like to do is to try to play, to make it perform: sound-making is easier with a guitar rather than with a trumpet, especially when such an attempt is undertaken by a non music-skilled individual, like in this case, the author and most of first year students of the Department of Architecture, University of Cyprus. In fact, the moment we attempt to play the music, we enter into an “in-between” condition, between the musical instrument and us, the players.

The introductory course of Means of Communication in Architecture is about visualizing relations in such in-between conditions (see image 1), which take place during the performance of the musical instrument: between the instrument and the musician, the musician and the orchestra, the orchestra and the music, the orchestra and the concert hall, etc. The system
of in-between conditions formulates the performance of the musical instrument in operation, as it has been defined in regard to the introductory course.

Why using musical instruments for a course of Means of Communication in Architecture?
The first reason has to do with what was mentioned already, which is to concentrate on visualizing relations that take place within in-between conditions. Such ability could become very important when one shifts from pedagogy of “architecture as building” to that of “architecture as practice”. This article aims to show how such pedagogical method contributes into this shifting by teaching students of architecture, ways of visualizing relations through performative diagrams. The objective is to introduce students into seeing architecture as an organization of complex systems of relations within urban environments. In this way, the design process could increase its degree of inclusiveness amongst project actors, with the architect having a creative role for visualizing relations between actors, environments, space, time and uses. The notions of performance and of diagram, which are more and more present in architects’ design processes, coming back from previous attempts in the 60s, are proposed to become vehicles for operating in such in-between conditions.

Why use musical instruments for teaching “visualizing relations of in-between conditions” and not buildings themselves? The choice was explicitly done as a methodological diversion in order to avoid preset ideas about architecture that usually first year students have. It could be called the “karate kid” method in reference to the famous movie with the same title where a young boy was recruited by a war veteran Japanese immigrant karate master. The first thing that the “kid” was instructed to do by his Master was to polish his car using a specific movement of his arm and body position. A move that became central in the “karate kid’s” training further on and at the same time removed preconceptions about karate from the “kid’s” mind. Such an instruction method has two gains: It separates means and preconceived ends, regarding the students. Therefore, it creates more space for learning about means in order to redefine ends and vice versa. The second gain is the diversion from first year students’ preconceptions of what architecture is about. Some of the comments of the students in their
course evaluation at the end of each semester are relevant: “We have combined architecture with something that did not seem to relate to, but at the end there are a lot of associations” (2007-08), or “unexpected development of the course, very interesting”, (2006-07).

Such pedagogical method creates on one hand, the possibility to broaden the definition of architecture itself. It provides students multiple ways to reenter into the domain of architecture. On the other hand, it allows investigations of complex concepts, such as that of performance, through seemingly simple case studies, those of the musical instruments.

It should be mentioned that associations between architecture and music have not been explicitly explored in the course. The emphasis was put on the visualization of the performance of musical instruments rather than the content and organization of music itself and how it could relate back to architecture. Despite that, the students implicitly grasped music characteristics such as rhythm and repetition through their study. This decision was based on pedagogical priorities and filtering of tasks for an introductory course of three hours per week. Any attempt to extend to such interesting but complex references might have affected in a negative way, the simplicity of the case studies.

**About the Introductory Studio of Means of Communication in Architecture**

First, is a description of the steps followed in the studio during the 13 weeks of spring semester (3hrs per week), and then there are some students’ remarks about the method employed and the studio outcome. They are documented by an inquiry done amongst the students who were registered in the course during the last four years, (46 students filled-in the questionnaires out of 87 registered in the 4 years, see image 2).

*Image 2: (Source: S. Stratis)*
Six Steps for Constructing a “Case” for the Performance of a Musical Instrument

**Step 1: Choose a Musical Instrument**

Every year there is an alternation between wind instruments (flute, clarinet and trumpet), chord instruments (classic guitar, electric guitar, double-base) and percussions, (images 3, 4)

Images 3, 4: (Percussions Musician Performing in Front of Students, Photo S.Stratis)

**Step 2: Choose Environment for the Musical Instrument**

It is either a rehearsal of Cyprus State Orchestra for wind instruments, (see images 5, 6), the film “Buena Vista Social Club” of Win Wenders for chord instruments and three kinds of music from “you tube” video clips for the percussions, (jazz, rock and latin),

Images 5, 6: Cyprus State Orchestra Rehearsal (Photo by S. Stratis)

**Step 3: Study the “Cosmos” of the Musical Instrument in Order to find Performative Moments**

The “cosmos” is made of all elements that participate during the operation of the musical instrument: the musician and her/his corporal parts involved in the playing of the
instrument (lips, mouth, lungs, hands and legs, fingers, ears and eyes, etc.), the rest of the orchestra’s musicians and their instruments, the maestro or the leading instrument if any, a singer or a dancing group, the stage and the space of playing, the audience, (see images 7, 8, 9, 10).

Images 7, 8, 9, 10 (UCY, 2005-06)
Image 7: relations between musician’s lips and lungs with clarinet mouthpiece
Image 8: relations between the maestro and trumpet playing
Image 9: spatial arrangement of orchestra
Image 10: relations between musician’s movements with performing.

**Step 4: Draw the Performance Map of the Musical Instrument**

Performance is defined, for the purposes of the course, as a system of relations between the physical parts of the musical instrument (for the trumpet for example: mouthpiece, lead-pipe, valves, valve pistons, finger hook, bell, etc) and its operational parts (the musician and her/his body parts, the orchestra, the stage, the space etc), which all together define the “cosmos” of the musical instrument. Each relation is studied as an articulation point either between physical parts or between operational parts or between physical and operational parts (see images 11, 12).
Step 5: Visualize in 2D and 3D Temporal Relations between the Musical Instruments and their “Cosmos”

Pick up two or three factors from the “cosmos” of the musical instrument which influence the performance of the instrument in the specific environment. Make diagrams of relations in two and in three dimensions, (see images 13, 14, 15, 16)
Step 6: Construct a “Case” for the Performance of the Instrument

Shifting from a case for the musical instrument to a “Case” for its performance.

**Step 6a.** Choose your favorable case and analyze its use in relationship to its form, (students have chosen amongst other cases: shoes, raincoats, glass-cases, folders, books, diaries, cds, usbs, etc.).

**Step 6b.** Choose an “articulation point” between a physical and an operational part of the musical instrument, (students have chosen articulation points such as: fingers
and trumpet valves, foot with bass drums pedal, lips with clarinet’s mouthpiece, fingers with guitar’s chords, etc.)

Step 6c. Design a “case” for this “articulation point” by transferring what it is relevant from your favorable case reference. Visualize the case in drawings and construct the case in a volume of maximum 15cm X 15cm X 15 cm (see contact sheets of “constructs”: images 18-29).

Image 18: (UCY 2005-06), Visual Information from Steps 1 through 6 with Emphasis on the Constructs

Image 19: (UCY 2005-06), Visual Information from Steps 1 through 6 with Emphasis on the Constructs
Image 20: (UCY, 2006-07), Visual Information from Steps 1 through 6 with Emphasis on the Constructs

Image 21: (UCY, 2006-07), Visual Information from Steps 1 through 6 with Emphasis on the Constructs
‘Case’ 6 (photo 67-77), ‘Case’ 7 (photo 78-95)
Image 24: (UCY 2006-07), Photo M. Theocharides

‘Case’ 1 (IMG 0090-94, 0096, 0097), ‘Case’ 2 (IMG 0094_2, 0095, 0096_2, 0097_2 up to IMG 0107), ‘Case’ 3 (IMG_0109 – IMG_0121)
Image 25: (UCY 2006-07), Photo M. Theocharides

Image 26: (UCY, 2007-08), Photo M. Theocharides
Students’ Comments about the “Six Steps to Construct a “Case” for the Performance of the Musical Instrument”

The first reaction of the students was that this studio had nothing to do with architecture. The second one was that they spent more time thinking how to visualize things rather than doing the task. The third one, towards the end of the session, was their positive surprise how things, not related to architecture, turned out to be so relevant.

When they were asked a few years later, (in February 2010), of their point of view about the usefulness and importance of the course, their comments were the following:

A lot of students pointed out that they remembered well the process of transferring ideas, of documenting abstract relations, of relating music with architecture into drawings, diagrams and models. They learned how to visualize relations through the study of musical instruments. How innovative the course was in relation to its content. They were still impressed how a course, with non-apparent relation to architecture, led to an architectural outcome, (the “Case” for the performance of the musical instrument that they were asked to construct could easily refer to a spatial condition). They appreciated the sort of creative confusion that was introduced by the step-by-step method with no obvious, at that time, way out, even if while doing it they were much stressed. A couple of them still considered that as a negative aspect of the course.

When they were asked to evaluate, from a scale of 1 to 5, how useful the course was for them in employing other kinds of media of representation, beyond the typical architectural
drawings in the years that followed, 39 out of 46 students gave a 4 and 5 range, (24 students gave No4 and 15 students gave No5, see image 30).

When they were asked how and where it was useful in relationship to the years that followed there were three types of answers. One of them was about their proper design process, another one was about the communication with the others and a last one was about the new regard for their surroundings, (they see everywhere relations).

Regarding the first type of answers, the students pointed out that the factor of time was introduced in their design process. They used diagrams to visualize relations in space within the analysis and the design of their main studio projects, (most of them mentioned that), to filter and evaluate information and then translate it into their design process. The course helped them to make explicit existing relations in space. Some of them noted that they had developed a critical thinking, a self-evaluating method and a personal way of visualizing information.

Regarding the second type of answers about communication with the others, some students pointed out that the relational diagrams became a way of communicating their ideas not only to their studio tutors, but also to the rest of the students of their studio groups. The 3D relational diagrams about their concepts became handy for project presentations. One student pointed out critically that it was useful only for the courses she took with the same tutor over the five years of her studies, (three courses), and she was not persuaded about its usefulness.

Concerning the third type of answers, about a new regard on the existing, the students pointed out that the course was useful on encouraging them to look at the everyday urban life as a system of relations. Their ability to analyze the existing was enriched as it had become more creative and innovative. One student pointed out the importance given indirectly, to the notion of “other” into design process.

When they were asked where they had found difficulties during the course, most of the students pointed out the difficulty in turning thoughts from an abstract level (that of relations between the physical and operational parts of the musical instrument), into drawings. Then, another level of difficulty was mentioned about transferring relations into a construct, (the “case” for the performance of the musical instrument). Another level of difficulty was the translation into 2D and 3D drawings of the relations between the musical instrument and its environment.

When they were asked what they would never change about the course most of the students pointed out the analysis of the musical instruments and the way their favorable case was translated into the construction of the “case” for the performance of the musical instrument. They would not change the way they were encouraged by the course method, to develop an organized and systematic way of thinking. They would not change how a step-by-step method with uncertain for them outcome, had ended up with such a result.
Question: How useful was the course in visualizing information beyond plans and sections?

(1: not at all, 5: very much)

Visualizing Information

“Which picture is worth which ten thousand words, for whom, doing what task, with what background skill and knowledge?”

Any attempt to visualize relations falls into the domain of visualizing information; learning to reason by diagrams, as Keith Stenning notes in his book, “Seeing Reason”. The aim of his book is to work on a cognitive theory of human information consumption which would tell us “which picture is worth ten thousand words…” Furthermore, this theory would explain similarities and differences between diagrammatic and linguistic representational systems. The theory would study image properties and compare them back to language by using insights of natural language semantics. Stenning mentions that information is presented either in words or in diagrams and that is as old as Classical Greece, but exploded recently with the use of computers. He goes on saying that representation systems require integration into a cognitive theory of representation. So far, they are separated between theorists’ tools for analyzing nature and “technologies” for thinking. The reference to Stenning does not want...
to be exhaustive, but rather to set an initial understanding how any effort to address “Seeing Reason” in architecture falls into such larger fields of research.

What is relevant though, to the aim of this article is what Stenning mentions about the usefulness of the cognitive theory he deals with. Firstly, he refers to the importance in Ecology for a demand of deep understanding of the environment⁴. This could relate in fact, directly to all those disciplines who claim to have tools for reading the environment and transforming it, such as architecture and urbanism. Secondly, such cognitive theory could help people to cope-up with lifelong learning plus, a point so relevant to architecture, to transfer learning across domains, communicate between experts, between experts and public⁵.

Other relative references about visualizing information, are the classic publications of Edward Tufte, “Envisioning Information” and “The Visual Display of Quantitative Information”⁶. In both books, he refers to ways of representing narratives of space and time showing amongst others, the drawings of Galileo of the movement of satellites around Jupiter and how that helped him to make his discoveries⁷. In the latter one he refers to representations of narrative itineraries (timetables, route maps, flight maps), to dance notations⁸. In his former publication he refers to relational graphics.

What is relevant to this article is in fact, the ability to represent time and relations. “How to represent the rich visual world of experience and measurement on mere flatland”⁹. His books have become a reference point for many who attempt to visualize information, and in the case of the article to visualize relations.

**Visualizing Relations in Architecture and Urbanism**

Representing relations, therefore dealing with the notion of performance in architecture and urbanism is undertaken quite often through the use of the notion of diagram. One could trace back this approach into at least two origins.

A few years ago an exhibition on Doxiades’s work was organized in Athens, Greece showing not only the projects that his office designed all over the world, but also his method of working and communicating. In the exhibition catalogue¹⁰, his systematic way of archiving visual information was pointed out, especially his diagrammatic approach on “seeing reason”¹¹. Whenever he wanted to explain himself, he would use some small cards and draw diagrams on them. He would use that method even when discussing family issues with his wife and kids¹². The thesis of the text in that catalogue was that Doxiades’ references on employment of diagrams goes back to Patrick Geddes, who introduced in planning a systemic way of looking at the city, an organic definition of the city influenced by biology¹³.

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⁴ Ibid. p. 2  
⁵ Ibid. p. 6  
⁹ Ibid. p. 9.  
¹¹ Ibid. p.15. The editor makes references to Keith Stenning’s work.  
¹² Ibid. p.15.  
¹³ Ibid. p. 18, The comparison between Geddes and Doxiades was done by Jaqueline Tyrwhitt in a Lecture series in Athens Ekestics Centre.
A systemic approach on design methodology has been employed amongst others by Robert Prost\textsuperscript{14} with references to Herbert Simon and Donald Schon. His book is full of relational graphics demonstrating design methodology. The author has examined such methods through his doctorate thesis\textsuperscript{15}.

What is useful to keep in mind from this reference is the introduction of systemic thinking about architecture and the city, seen both as systems of relations. It is this definition that since the 1960s has been enriched with new representation means.

The second origin to such relational approach in architecture and its methodological support by diagrams goes back to the work of Christopher Alexander, Chermayeff and Tzonis in the 60s. An attempt for a breakthrough from rational modernism thinking needed alternative representation tools in order to make explicit issues not visible in architectural thinking up to that time, to incorporate in fact, information in design process unable to be done by typical architectural drawings. In this way, architects could search for methods of forms of organization, to link programmatic coherence to functional needs and to take a critical position vis-à-vis the actual urban environment\textsuperscript{16}. Sofia Vysovites studies the role of new means of representation such as maps and diagrams in architectural pioneered design which replace typical architectural drawings. She recognizes common aims between the approaches of Alexander, Chermayeff and Tzonis in the 1960s with those of contemporary Dutch architecture as MVRDV and UN Studio, which are about the reconsideration of rational design methods. The practice of diagrams as analytical design method, she says, is back in architectural scene which helps for professionalism increasing the sufficiency of the architect to research new organization structures, to support argument for complex forms and to evade from the “object” design\textsuperscript{17}.

Recently, Kim Jong-Jin in an international architectural magazine, “DD / Damdi” edited an issue on “Activity Diagrams”\textsuperscript{18}. He invited internationally renowned architects to write about their design methods and the role of diagrams. A lot of tacit knowledge was made explicit which helps a lot to link design methods, back to visualizing information and “seeing reason”.

The notion of diagram is employed to relate parameters, which the architects consider important for the design process. In the interview with UN Studio, the architects mentioned that the diagram became a tool for an inclusive design process where there is interaction between architect, object and public\textsuperscript{19}. The relational aspect of architecture was made explicit in a lot of the interviews where the diagram was considered as a tool to represent those relations. Vincent Guallart pointed out that the architect needs to understand the essence of rela-

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\textsuperscript{16} Vyzovites, Sofia, “Χάρτες, Διαγράμματα και τοπία δεδομένων: προς την αναθεώρηση του ορθολογικού σχεδιασμού στη σύγχρονη αρχιτεκτονική πρωτοπορεία», (Maps, diagrams and datacapes: towards a reconsideration of rational design in pioneer architecture” in Trova Vaso, Manolides Costas, Papaconstantinou Giorgos, “Η αναπαράσταση ως όχημα αρχιτεκτονικής σκέψης», (Representation as vehicle of architectural thinking), editors, University of Thessalia, Department of Architecture, Futura, 2006, pp 379-386.
\textsuperscript{17} Ibid, p. 385-386.
\textsuperscript{18} Jong-Jin, Kim “Activity Diagrams”, editor, Seoul: DD publishers, Damdi, 2006
\textsuperscript{19} UNstudio, interview in DD review, p. 297.
}
tions in order to grasp the meaning of the environment. Architecture is based on the notion of organization rather than formalization. Architecture is formation instead of form. This leads us from the conventional sketch to the diagram, remarked the architects Y02.

But then, it was pointed out that the diagram could not be formal. In the interview of Ian+, a quotation of Peter Eisenman was used saying that “… the diagram is for architecture as text is for narration. The diagram is formed, but cannot be formal” Njiric+Njiric made clear the danger of the domination of the use of diagrams in design process, since it had made the process much more interesting than space itself. Diagram had come to fill the gap of zero degree identity of the contemporary times, they mentioned. They insisted that the use of diagrams should have stayed on a subjective level, used as a personal point of view, as a sentence, a line, a diary, a thought. They saw a danger of diagrammatic architecture, as they called it, becoming almost a scientific discipline. Their interview became a manifesto on supporting the return to spatial quality architecture rather than putting the emphasis on the process.

Visualizing Relations as a Methodological Design Tool: Repositioning the Artifact within its Environment

Two major points are emphasized through this article, having in mind both positive and negative aspects of using diagrams in architecture and in this case performative diagrams which visualize relations: the first one is how performative diagram, as methodological tool, puts in dynamic relation parts of the design process. The second point is how through performative diagram, complex relations between design outcome (the artifact), and its environment are brought to the surface. Both points are in fact, the driving force behind the course of Means of Communication in Architecture in the University of Cyprus.

Regarding the first point, the performative diagram, as methodological tool, operates as vehicle in various moments of design process turning it into a non linear, inclusive process. It has a portable character and operates within in-between conditions since it relates design parameters by filtering, linking, verifying, compressing, localizing, mixing, as mentioned by most of the architects interviewed in DD architectural magazine, but also pointed out by the students of the course through the questionnaires. The performative diagram takes at least four different kinds of roles in such operations: 1. Diagram as filtering device within analytical environment, (see image 31), 2. Diagram as vehicle for carrying knowledge from analytical into projective environment (making knowledge operative – see image 32), 3. Diagram as transformative device within the projective environment of the project, (see image 33). 4. Diagram as vehicle for assuring a nonlinear design approach (introducing parts of projective environment back into the analytical one- see image 34).

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20 Vincent Guallart, in DD review p. 338.
21 Y02, interview in DD review, p. 378.
22 Ian+, interview in DD review, p. 98.
23 Njiric + Njiric, interview in DD review, p. 198.
1. Diagram as filtering device within analytical environment

2. Diagram as vector for carrying knowledge from analytical into projective environment within design process (enabling knowledge operation)
The second point to emphasize is the fact that the interrelationship between artifact (design outcome), and its environment depends on a system of relations of in-between conditions which most of the time remains implicit. The performative diagrams make explicit such relations and encourage their participation into design processes. Allowing such relations to contribute into design processes, opens up the possibility to exploit their morphogenetic character.

In fact, the design process outcome could be a formalization of such relations brought to the surface by performative diagrams rather than be a formalization of diagrams, as criticized already. This morphogenetic power of relations could contribute amongst other things, into relinking architecture back to the urban.\(^{24}\)

Through the comments of the students about the course, it comes out indeed, that their regard on the environment had shifted from object-based to a relational-based one. Such a shift gives the possibility for a deeper understanding of the relations between the artifact designed and its complex environment. The morphogenetic power of such relations have been discovered gradually by the students through the six steps of the studio exercise and then visualized in 2D and 3D drawings. Through the process of designing the ‘case’ for the performance of the musical instrument, the students used, in an implicit way, the performative diagram in its diverse facets mentioned already.

The Concept of in-Betweeness in “Architecture as Practice” and How Performative Diagrams become useful Tool

What sort of architecture this introductory course of Means of Communication in Architecture aims to contribute to? As mentioned at the beginning of the article, the aim is to contribute to the pedagogy of architecture by broadening that of “architecture as building” into that of “architecture as practice” (see image 35). Such shift increases the inclusive character of architecture, (see images 36, 37, 38, 39).

Image 35: (Source: S. Stratis)

Jonathan Hill\textsuperscript{25} refers amongst others, to “architecture as practice” emphasizing the importance of the user as co-author of architecture. Stan Allen refers to architecture as part of material

practices (with urbanism, ecology and engineering), defining them as practices which do not deal primarily with images and meaning or even with object but with performances. They are less concerned with what the things look like but with what they do\textsuperscript{26}. For Stan Allen, architecture is a practice engaged in time and process devoted to the production of directed fields in which program, event, activity could play themselves out. He goes on proposing connections between architecture and infrastructure. In his book “Points + Lines: diagrams and projects for the city”, there is extensive reference to how architects have employed other means of representation in order to address such issues, such as diagram of flows from Louis Kahn\textsuperscript{27}, or drawings from the project of Metastasis by Iannis Xenakis\textsuperscript{28}.

The “in-betweeness” in architecture as practice is derived by its inclusive character, within a new collaborative space, (see images 36-39). It takes place where the system of project actors and public involved meet the project priorities, where usages meet space. The “in-betweeness” is also derived by the complex relations between the environment and the artifact to design.

Performative diagrams are used as means of representation and methodological design tools by architects who are indeed, concerned on one hand, with ways of opening-up design process and on the other hand, with ways of enriching the role of the architect. Within such collaborative design space the architect could become a sort of mediator, “translator” of priorities, of dynamics between political and spatial domains, a sort of developer of adaptive means of communication\textsuperscript{29}.

The course of Media in Architecture aims in fact, to introduce all these in the education of the architect, preparing the future architects for such possible roles plus, enriching the culture of architecture as practice.

\textsuperscript{26} Stan Allen, “Points + Lines: diagrams and projects for the city”, New York: Princton Architectural Press, 1999 “Form matters, but more for what it can do that for what it looks like” cited by M. Hays in the introduction of the book, p. 2.

\textsuperscript{27} Ibid. p. 56

\textsuperscript{28} Ibid. p. 100.

Conclusion

The outcome of the final exercise of the course (step 6), is a construct, a “Case” for the performance of a point of articulation between physical and operational parts of the musical instrument. In other words, it is a design exercise for a system of in-between conditions. These constructs are in fact, the formalization of morphogenetic relations which were visualized by the students in a step-by-step method during the course. The aim of the final exercise was to have the students navigate through a first stage (steps 1-5), of visualizing relations with the help of performative diagrams into a second stage (step 6), of designing an artifact as an outcome of a system of relations in space and time.

It was intriguing to look at these constructs (see images 18-29 and 40-43), and make similar observations as made when looking at the musical instruments themselves: “seeing” an interrelation between the musical instrument and how it could perform in relation to music. In this case, the students linked the constructs back to the form-giving relations amongst the various parts of the musical instrument’s cosmos and the instrument itself. The constructs could be regarded as “friezing” moments of relations between the musical instrument and its environment.

Such approach introduces into architecture students’ culture, a dynamic interaction between artifacts (design outcomes), and the environments in which they are immerged. Plus, it offers possibilities to students to come in contact with a complex definition of the notion of environment through that of performance between the various parts of the “cosmos” of musical instruments.

Such dynamic interaction between artifact and environment encourages transgression of so far, departmentalized parts of design process plus, unreachable by various project actors. Visualizing relations and therefore, documenting performances, make explicit such potentials. The performative diagram becomes a tool for such aim.
The students’ discourse when presenting their “Case” was inclusive, since the artifact they designed and constructed, could be regarded as a “3D CONTRACT” amongst the participants in the cosmos of the musical instrument. Hopefully, that would be the case for their architecture projects later on.

Images 40-43 (UCY, 2008-09):

*Students’ final A1 panels demonstrating the steps from visualizing relations (steps 1-5) to the step of to designing a construct for the performance of a point of articulation between physical and operational parts of the musical instrument (step 6).*
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