

Drawing Uncertain Conversations:
In search of liminality in Design Education

Explore Lab Dissertation
Katerina Demetriou, 4940822
Tutor: Stavros Kousoulas
Master in Architecture, Urbanism and Building Sciences - TU Delft

ABSTRACT

In this thesis I deal with contemporary resurgence of cybernetics and systems thinking amongst designers and educators, in architecture. I explore topics such as how ethics might contribute to design; the role of education, as well as that of place and epistemology within systemic crises; intersections of architecture and cybernetics; and the development of unconventional methodological approaches to design education inspired by cybernetics' original trans-disciplinary agenda.

I deal with the idea that architecture concerns/carries undecidable questions; something that makes decision making, in architecture, a very complex issue we have to deal with. This complexity brings problem solving, acceding on architecture, in a set of circumstances where responses do not meet the reality of every situation but, rather feed fixed images that today's social culture requires to see. I filter the ideas around the undecidability, the rooting of such approach in architectural education which leads architectural design, towards problem solving, by filtering the ideas, around this undesirability, thought principles design deals with; such as epistemology, design and ethics. Moreover, I propose to see the principles designers are following to develop a design outcome, the same as these educators are dealing with. This idea derives from the fact that in design, designers use methods of interacting with given environments and in education, educators use methods of interacting with given minds. The main target for both, is to generate situations/events, where new situations/events have the possibility to take place... Therefore education's main target is to enhance the development of minds, capable to interact and respond to any given situation/event they might fall into.

I develop the idea that the methods of approaching architectural education in order to improve its outcome, should be seen closer to the topic of 'conversation theory'. Through the mind's experimental interactivity, uncertain conversations are develop that thus result in the act of play, where each individual is able to express and expand itself.

METHOD

Drawing on design thinking, design teaching, second-order cybernetics, conversation theory, epistemology and ethics, I am trying to understand the undecidability architectural design and approaches towards architectural education have to deal with. I am trying to perceive how this undecidability can be intergraded in the methods under which we approach architectural education; in order to 'grow' it as a disciplinary, by taking in account our actions and the situations we are involved in¹, each time. I then deal with the ways under which these configuration will be implemented in the methods we want to be meeting with architectural education. Naming the method under which I am approaching this topic, "open controlling systems" derives from Cybernetics/Second-Order Cybernetics; a system of control used in a way to assist/ remind how design decision should be driven both, by students and educator, intergraded in conversations or interactivity. Architectural education will then be seen through the principles of epistemology (as understood through radical constructivism), ethics and design through embodied practices that intensified the movement parallel to mind/body dualism², naming, experimentation, named under the act of 'Play'.

¹ Sweeting Ben, *Architecture and Undecidability*, p 3

² McWhorter Ladelle, *Bodies and Pleasures: Foucault and the Politics of Sexual Normalization*, p 61

CONTENTS

Abstract	page 2
Contents	page 3
Preface	page 4
Introduction	page 6
Problem - Architectural education as a universal dogma	page 8
Finding one's-self through education	page 11
Experimental Interactivity - Conversation Theory and the act of PLAY	page 13
Second-Order Cybernetics - Ethical systems of control in Uncertain Conversations	page 16
Cultivating Ethics in systems of control, to guid education in architecture	page 20
Conclusion	page 21
Bibliography	page 23

I have sometimes thought of the relationship between epistemology, ethics and design as a linear one; in terms of various ways of applying theoretical ideas to design, such as initiating ideas from educational processes and communicating them through architecture; or having them guide design practice. Through my studies, I have come to understand the activity of design as coinciding with epistemological as well as ethical questions, rather than following from them.

These three different contexts -designing architecture, epistemology³ and ethics⁴, are connected in an interchanging 'circular pattern' implementing architectural education-as Ben Sweeting has explained in his essay "*Architecture and Undecidability*". Although, these fields raise diverse questions, I see them as being interrelated, in such a way, that they can constructively inform each other, since they are all concerned with undecidable questions⁵. This "*undecidability can be traced in each case to our involvement, as part of the situation in which we are acting*"⁶, both in design education as well as design practice.

By proposing questions as not having fixed answers, I do not mean to imply a position equivalent to nihilism, relativism or solipsism, whereby epistemology, design or ethics are entirely arbitrary to architectural design. But, to follow the idea that in each of these three different contexts, it is misleading to consider our action (our knowing, our designing, our conduct), in terms of a relation or "*correspondence to some final answer, towards a true fact, an ideal solution, a moral code*"⁷.

To elaborate further on the above, ideas around architectural design are not meant to be designed under a fixed set of rules, reflecting a certain pattern of learning, referred by Catherine Bateson, as "demanding control system"⁸. Therefore, with this thesis I want to propose that architectural education should not carry predetermined question towards the learners and, by extension, towards design practice.

I mean to explore the ideas that: knowledge is not a correspondence between our understanding and the world beyond it (epistemology); ethical conduct is, similarly, not a matter of conforming to an ideal way of acting; and that the activity of designing cannot be successfully codified into objective rules or rule governed processes⁹. In order to take a contrary position in each case, I am proposing to look into the liminality of the process in teaching architecture, in such a way that we have to leave something of importance -our own involvement in the situation- behind, **through interactivity, experimentation and play**. To do so, 'feed-back' -in the sense of observation, evaluation and iteration- is required as the crucial principle that mediates between one action and the other.

'*Cybernetics*' or '*observing systems*' -the observing system of minds' interactivity and communication of ideas- make sure that information communicated between beings is

³ "the philosophy of knowledge or, as von Glasersfeld (1990a, p. 19) puts it, of knowing", based on the fact he raised, that, we cannot do so except on the basis of further observation, aiming to understand our understanding as being of our experience rather than of the world beyond it, and that is what we refer to as 'knowledge'.

⁴ "in terms of questions about our action or conduct and our deliberation, in both personal and philosophical senses, over that conduct"

⁵ "...the sorts of questions which do not have definite answers." Sweeting Ben, *Architecture and Undecidability*

⁶ Sweeting Ben, *Architecture and Undecidability*

⁷ Sweeting Ben, *Architecture and Undecidability*

⁸ Bateson Mary Catherine, *Cybernetics in the Future*, Introduction

⁹ For instance, that designing architecture cannot be optimised or otherwise automated as a whole without this being arbitrary.

generating situations according one's mind target. Since feedback is required in designing with '*Cybernetics*'¹⁰, this '*observing system*' should observe whether feedback proceeds in directing ideas around design, toward an individual's target. This is second order cybernetics that implies observation to an already observing system; the mind of an individual. Feedback -occurred through observation, evaluations and iteration- is unfolded through situational conversations. Opposed to mere forms and spaces in architecture beings, "*situations imply a spatiotemporal generation of objects, forms, spaces and events that exhibit unstable states in a system*"¹¹, where conversations imply an experimental and experiential event of minds' interactivity, between entities involved in the design process. The experience of interactivity is what mediated in these kind of conversations, thus generating new ideas through communication with other beings.

The approach of rethinking the liminality in educational processes derives from my personal academic experience in architectural education; since I have noticed the difference on various educational approaches in architecture and design. The School of Architecture in Brighton University- an Art School for Architecture -where I first completed my bachelor- focuses its educational methods based on conversation circularity; thus, interactivity between students and educators, materials, locations' characteristics and the theoretical backgrounds of the above. Experimentation and the act of testing played an essential role on the school's educational approach; assisting individuals to find the limitations and potentials of their abilities but, subsequently, to find themselves through the liminality of the testing process.

Facing a totally different educational approach at TU Delft - an Engineering School of Architecture- I noticed the act of 'Play' and the time given for experimentation missing. Repetitive patterns of design approaches are usually developed in order to reflect something that is already sort of given, where as a respond, conversations are brought into a set of circumstances. Decidable questions are applied, where there targeted solutions and the 'correct answers' are expected; an exercise that is leading to a forced design and has, in my opinion, the scope of training rather than educating.

This thesis has a scope not to set an example of what (the future of) architectural education and architectural design, as a consequence, should be but, to work as a prototype, to inspire and motivate pedagogical methodologies in architecture. Aiming to expand the potential sense, a plenitude and a wealth of meaning first in architectural education, that will then, allow us to continue moving and inspire future creation in the field of architecture.

With this project I attempt to understand how innovation in architectural design can be achieved, through the detachment of educational process from the "*imposition of some already given truths*"¹², as a go-to principle for future architects/designers.

¹⁰ "the scientific study of control and communication" coined by Norbert Wiener. "Conversations"

¹¹ Murrani Sana, Architecture of Generative Situations, p

¹² Colebrook Claire, *Leading out, leading on: the soul of education*, Nomadic education, Vol. 18, 2008: p 35

Debates focusing on how 'cybernetics' and 'conversation theory' applied in educational processes of architecture and architecture practice, have so far contributed a great deal to the creation of new design imperatives and theoretical discourse, in the field of experimental architecture.¹³ These are some areas that, in my opinion, also need to be absorbed by educational institutions that follow a repetitive patterns of approaching architecture, based on "*demanding control systems*"¹⁴. This paper explores interim stages of such advancements, both theoretically and practically. These stages are derived from the works of Clair Colebrook and Ranulph Glanville, regarding the role of education, Ben Sweeting, regarding the principles such as epistemology, ethics around topics including design in connection to cybernetics; theories also coined by Glanville, 'conversation theory' introduced by Gordon Pask and experimentation in architecture as explained by Sana Murrani, Lyons Kallikourdis, Scott, and Pask.

Educational systems in architecture nowadays are promoting the equalisation and frame the work of students in their own framework in order to be able to equal criticise it. Therefore, the uniqueness of oneself and the search for finding the true self thought the process of a design is limited, due to the strict frameworks the educational system are applying to satisfy the predetermined requirements of the field.

The first chapter will explain the purpose of education. I propose that education should be acting with the scope of creating individuals able to confront to future design situations. This proposal has its basic principles in intergrading methods that mesmerise processes in the educational journey, which forms a complete individual, by guiding it to find the truth for itself. As I have mentioned in the preface, I have come to understand design education as not a linear process, but rather a circular loop. I attempt to reinforce this argument by explaining that the role of education should be that of indicating interaction between entities involved in one's educational path, targeting on the refinement of one's skills and the expression of itself.

Interactivity, experimentation, 'conversations' and 'the act of play' are the crucial essence of the following chapter. Through circular causality, interactivity become explorative, for one individual to find the truth for itself, in the process of education. I propose that processes of designing architecture, under educational settings, should be seen in parallel substances as these of approaching architectural education itself; through, epistemology, design and ethics. Conversation development is proposed as an idea that learning occurs through uncertain conversations about a subject-matter, which serves to make knowledge explicit and targets on how interactions lead to the "construction of knowledge", or "knowing"; wishing to preserve both the dynamic/kinetic quality, and the necessity for there to construct a "knower". How can designing architecture, and designing educational settings (including methods and processes) then, can be drawn on approaches of interactivity, without interrupting the ways that entities involved proceed, but rather by elevating any possible forms/spaces they might offer for interactivity? In order to rethink design experience, for both students and educators, trust and respect in conversations are required. For ideas exchanged in the settings of architectural education, perceptual believes will be specified, so as the act of play to fall into a systematic approaches around decision making around design.

The following chapter explores the principles under which these conversations in architectural education should be approached. Conversations between entities involved in the process of developing knowledge -known as 'conversation theory'- should involve observation that teaches both, educators and learners, the ability to interact with and

¹³ Murrani Sana, *Architecture of Generative Situations*, p 420

¹⁴ Bateson Mary Catherine, *Cybernetics in the Future*, Introduction

respond to situational events. Emerging conversations in design teaching processes is to be seen in the position of emerging situations in design processes. Conversations and information communication have the ability to give birth into new architectural entities, under a 'circular feedback of causality', where drawings and images involved, are the language used to generate an endless potential of ideas around design. Education in architecture should work in contributing to an ethical system of control and talk in to account that each individual builds it's own understanding of the world, with which approaches it as well. Such ethical systems of controls known as 'Cybernetics' are proposed in the educational approaches of architecture, aim to assist an individual in forming the truth for itself; generated through interactions and especially conversations developed. Specifically, the system of 'second-order cybernetics' is proposed as an observing system of already observing system to assist in how education should act toward a constant becoming and its mind thinking; a student. This ethical system of control it is going to be unfolded through examples of how 'conversation theory' is applied in educational environments; in conversations developed between student and education.

Concluding, the above ethical approaches are proposed towards both for the settings of design practices and for educational approaches, in design teaching. Ethical responsibility must be applied in designing educational processes, both from the side of students and educators, by understanding there to be ethical aspects to design's own disciplinary foundations. This approach aims to develop a safe environment for learners and educators, letting them express skills immanent to their intentions. What we need to make sure is that their intention are ethical towards the situation they are mesmerising and that are working for each individuality to find their own true as well as reinforce their skills of diversity and prepare themselves for future design scenarios.

PROBLEM - Architectural education as a universal dogma

To the issue of architectural education today, which plagues particularly the larger scale institutions, is that students might not receive adequate consideration from their educators. The responsibility for answering a set of questions raised, does not derive from the students' individual opinion and critical thinking, but rather from universal principles based on decided questions raised and set by the respective institutions.

Architecture is a subject of cultural critique, since it raises questions that are, for instance, variously aesthetic, ethical, political and semiotic in nature, aiming to be a constituent part of culture¹⁵. Diving deeper into the topic of education, in his book *Homo Educandus*, Demetris Liantinis has expressed that "*the notion of education today - in its global operation- is an officially collapsed phenomenon: a drama, if we like; that sets the scientific forms of the times of decline*"¹⁶. The progressive position of the type of education is determined by the ruling social class of each era. What Liantinis has expressed here, is the contradiction between the notion of education as it used to be and what it is today. In the past, the notion of education implied that an educated individual belongs into a decent social class and only intelligent individuals had the ability to study. Today, the notion of education operates/works as a 'pass' towards a 'secured' working journey. Therefore, our contemporary culture around education bring an individual's intentions in a set of circumstances, fixed by a specific image around its purposes, in order for it to be integrated into the standards of the society.

This contemporary educational culture deals with the means and information needed for students training, aiming to develop the perfect profile, or image, that matches to a very limited labour market in architecture. This is a culture that favours environment bursts, supporting the values of corporatism and mass design, under harmonious global setting. This architectural education, by extension, pushes students' potentials and intuitions aside, by limiting a constructive and interrogative future, in exchange for an inflexible and scarce profitable result. Students' journey, after the completion of their 'educational training', falls into a determined career journeys/positions, resulting in a confine, repetitive and disorienting individual truth. To discourage situations we should move away from repetition and closer to a meaningful orientation, towards ourselves and the others.

The insolent elements that determine education today derives from the crisis and the decline of our culture is something that has become obsolete protection in the new observation, away from the generativity of a fixed image.¹⁷ "*Unethical behaviour achieves the opposite: it denies, hinders and diminishes that impetus and hence makes the subject unable to sustain it.*"¹⁸

Educators are forced to follow a specific pattern of learning in order to make marking easy and fast for them, due to the pressure of time given by institutions' mass 'training' systems. As a consequence, educators have no time for observation, for acting upon ideas developed by their students and for designing conversations with them.

On the other hand, the new wave of students and future architects, develop a way of thinking that focuses on problem solving, based on a set of rules, determined by their

¹⁵ Sweeting Ben, *Architecture and Undecidability* p. 24

¹⁶ Liantinis Demetris, *Homo Educandus*, p. 9

¹⁷ Pedagogical methodologies focuses on the problem as a dilemma which develops a problematic structure. Colebrook explained that: "*Spark's novel... suggests that if education is only formal, if it only has to do with development and mastery - and not some exposure to truth - then all we are left with is captivation by image.*" Colebrook Claire, *Leading out, leading on: the soul of education*, p 35

¹⁸ Braidotti Rosi, *Deleuze and Philosophy, The Ethics of Becoming Imperceptible*, p 136

educational programs. What we are saying to students, with such an approach, is: *“Forget about a symbiotic relationship between you and your tutor, the two entities involved in the process of a project’s development, this is going to be legislated from outside and you are going to be suffering if you don’t move with the schedule of the society’s”*¹⁹. The result is that we teach an extreme individualism a sense of separateness, by giving it the experience of a demanding control system, instead of giving the experience of working in mutuality, as a system. Thus, architecture students start (to objectify themselves) seeing them-selves as workers who need to meet the standards that their schools have developed, rather than the standards and principles they have developed themselves. As a repercussion, they gradually conceptualise themselves as human assets for architectural agencies where they are therefore treated in such a way. *“Today’s unilateralism in the development of education with its exclusive tenure in the need of human as material”*²⁰ develops a circle around them, where any probation outside that circle seems as a threat.

Continuously, in problematic architecture educational approaches acting and practical thinking toward the design is being put aside, due to the dramatical change of mediums/ tools of representation and methods of generation we, as architects, use to design with, after the peak of demands under the influence of technological/digital and biological advancements of the current age²¹. This perspective on architectural practices and educational methods has been explained by Sanan Murrani in her text *“Architecture of Generative Situations”*, since both, representation and experience have a direct impact on the development of the tools of design and generation, as well as interactivity in architecture... Therefore, the disengagement from the analogical ways of design has put us in practical paralysation. The distance from physical making and testing is simplifying the result to a standardised levels of potentials, attending to generate new events or conversations in limitations. I do not want to express a negative attitude towards the technological tools of design; on the contrary, the use of different techniques in design and representation has played a great part in shifting the purpose of technology from the use of machines into the involvement of prosthetic technoscientific devices that have become an extension of our own bodies (in terms of designing). Such a shift is reflected in the tools and media of representation and communication.²² What I want to express is the rapid disconnection of understanding making, by applying our bodies in action and by disconnection/disorienting us from how things come to be how they are so far. In turn, there is discouragement of risk taking, creativity and experimentations, limits the act of ‘PLAY’ therefore discouraging the growing of the self through educational processes.

Either seeing the education process as the system and the design as the result, or visa-versa, in such a demanding control system, the system and the result are both stuck in the same pattern mutually reinforcing each other negatively. In order not to objectify²³ the problem and merely focus on how it could be resolved, instead of seeing the results of architecture culture as a problem, I will focus on its generation, rooted in the structure and principles that dictate education in architecture. The “dogma”, if we like, is illustrated on two main levels, firstly in the universal structure of architectural education and secondly in the relation between students with their educators. This dogma derives from the culture of today’s societies’ around the approach to architectural design, that also drives the result as such (architectural entities do not respond to the purposes they were designed for, but rather satisfy determined set of ruled applied from a demanding control system.)

¹⁹ Bateson Mary Catherine, *Cybernetics in the Future*, Introduction, American Society for Cybernetics - ASC, 2014

²⁰ Liantinis Demetris, *Homo Educandus*, p. 19-20

²¹ Cook Peter, *Drawing: The Motive Force of Architecture*

²² Murrani Sana, *Architecture of Generative Situations*, p. 421

²³ McCormack Brian, *The problem with problem solving*, pp. 20-21

Similarly to the circular causality; a form of **circular** reasoning in which the cause of some event is held to exist in or be implied by the event itself. Self-demand feeding easier to distinguish error that forcing a fixed pattern already. But, “*speaking in active rather than passive voice*”²⁴ the problem would be framed as: how can architectural education be rethought, in order to increase imagination and critical thinking, resulting in harmonious patterns of creation.

To elaborate deeper on how might the notion of response pertain to ethical activities, I am focusing on the processes of control over the architecture educational system. *Ethical processes of control*; as Foucault writes that the “*ethical problem [is one] of the definition of practices of freedom*”²⁵, which implies that the ethical problem is one of distinguishing between those practices that maintain or expand the domain in which we are free to create ourselves and those practices that sustain restrictions on that domain, shoring up an established order. Yet, for practices of freedom to be responsive and ethical ones, they must do more than just refrain from participating in and reinscribing oppressive norms and social structures.²⁶

²⁴ McCormack Brian, The problem with problem solving, pp 20-21

²⁵ Foucault “L’éthique du souci de soi comme pratique de la liberté,”; “The Ethics of the Concern for Self as a Practice of Freedom,” p 283.

²⁶ Heyes argues similarly when she emphasises that *resistance* understood simply as *refusal* will fail, Heyes Cressida, *Self- Transformations*, p 92

FINDING ONESELF through educational processes

Cultivating the ideas that Ranulph Glanville had developed in his research, directly on the principles of education; at the beginning of his lecture “Freedom and the Machine”, he claims that “*it would be bad for people if they are taught*”²⁷. He builds upon this idea based on the motives of learning from Friedrich Froebel, the inventor of the notion of kindergarten, a remarkable educator who believed that kids know how to construct knowledge. According to Froebel, a teacher’s job is not to tell people what to do but, rather to observe and draw with them their learning thinking. Froebel believed in the freedom of learning, the freedom to discover who you are, as well as the freedom to be that person. He also believed that, “*by forcing people and kids to act or do things in certain ways, leads to social and psychological pathologies*”.²⁸

Coming to complement the above, Claire Colebrook in her writing *Leading out, leading on*, explains that the etymology of the word education derives from the latin word ‘educere’ which means ‘to lead out’²⁹. Therefore, to lead out an entity, means to educate it without imposing some already given truths under the leader’s own will, but rather under the learner’s own capacity to reach the world. The importance of finding oneself falls into the fact that in trying to verify our observation of the world, we inevitably encounter the problem that we cannot do so except through our observation, which is what we are trying to test, and not our capacity to do as expected.

Attempting to verify our own observation of the world is something explained by Ben Sweeting, under the term ‘epistemology’.³⁰ The question of whether epistemological questions have right answers rests on the acceptance or otherwise of realism; “*the idea that our experience of the world is one that corresponds to how the world is beyond this experience*”³¹. This does not entail that our understanding is solipsistic or that we commit to any other anti-realist position, rather, it is to understand our understanding as being of our experience, rather than of the world beyond it.³²

By choosing to understand oneself as being part of the world, one returns again to the undecidability of the question, one’s responsibility for one’s answer and the possibility of answering differently. The self-reference of these questions leads back to undecidability even if one takes the other choice. Even if one’s observation is objective, one can still not verify this independently of it. Objectivity, therefore, rests on an assertion and thus returns us to a decision we are part of. The undesirability in such choice follows then, that our epistemology is our own responsibility.³³

²⁷ Glanville Ranulph, Lecture: *Freedom and the Machine*, UCL 2010

²⁸ Glanville Ranulph, Lecture: *Freedom and the Machine*, UCL 2010

²⁹ Colebrook Claire, *Leading out, Leading on: The soul of education*, p 35

³⁰ Sweeting Ben, *Architecture and Undecidability*, pp 17-18, “*The epistemological understanding that he advocated, in contrast to realism, is that shared by the closely associated positions of radical constructivism and second-order cybernetics. Radical constructivism is not so much an epistemological position but rather a critique of the traditional understanding of epistemology, in terms of a correspondence between our understanding and the world beyond our experience*”.

³¹ Sweeting Ben, *Architecture and Undecidability*, p 17

³² Sweeting Ben, *Architecture and Undecidability*, pp 17-18

³³ Lyons Jack, *Epistemological Problems of Perception*

Big relevance is also given to the self and its transformation by Deleuze, who addressed the argument around identity -considering it as a constant becoming³⁴. Consequently, education should lead one “*to formate itself, who must grasp the truth; to find the truth of what is already there*”³⁵. Colerbrook also claimed that there is “*something dazzling and beguiling about the leader who insist that there is no external content or body of knowledge that the student must grasp or receive*”³⁶. It is the other entity itself that grounds/draws its educational journey through the skills and the tools it can better offer. These tools and the perception which one entity/student/designer carries when approaching its environment, bears a proper potentiality, while waiting for the interaction with its leader/educator/client. Therefore, educators have the responsibility to deal with other entities -other constant becomings- the students, who carry their own experiences and their own transformational path. Moreover, Guattari argued, that the role of the architect and architecture should be that of producing new subjectivities. Therefore, educators holding the same role as that of the designers should be able develop interactions through their own subjectivity.

Consequently, I argue that in order to achieve the transformation of both, students and educators, the process of education in architecture should entail interactions and experimentation. When such processes are being used they can lead to the generation of new subjectivities. Educators considered as also constant becomings -seen in the position of the designer- should be capable to formate generators (students), who then have the capacity to take decisions and generate other subjectivities (design), that in turn, have the capacity to propose, invent or generate new experiences for the users to develop their own ones subjectivities...

In how finding oneself, von Foerster argues that: if we are part of our own observations and so cannot claim objective authority. This is a connection he makes between epistemology and ethics, something that will be later explained in the thesis. Based on his claim, educators and students are therefore, ultimately responsible for all of their own thinking and acting and are not justified in imposing their own views on others³⁷. In future scenarios, an entity coming out of an educational environment that appreciated its capacity to reach the world, has more possibilities to come out of its education path, capable of leading out for itself; to be self-generated and self-formatted, shaped by the truth.

³⁴ Deleuze Gilles, *The Funambulist Pamphlets Volume 3, Control & Becoming: A Conversation between Negri and Deleuze*, p 55-57

³⁵ Colebrook Claire, *Leading out, Leading on: The soul of education*, p 35

³⁶ Colebrook Claire, *Leading out, leading on: the soul of education*, p 35

³⁷ von Foerster Heinz, *Through the eyes of the other*, In F.Steier(Ed.), *Research and reflexivity* pp 63-75

EXPERIMENTAL INTERACTIVITY - Conversation Theory and the act of PLAY

In this chapter I will specify what I mean by proposing 'interactivity' between entities involved in the process of architectural education. I propose interactivity, as a method to assist an entity in finding itself. Interactivity is to be seen through the act of 'play'; as conversation and experimentation that leads to unique types of learning and innovative designs, as an outcome.

The thing outside of us and how to reach it:

Taking it from the beginning, knowledge should not be seen as something detached and irrelevant to us; an idea that reality doesn't reflect upon. By naming knowledge 'the other' or 'the thing', we externalise what we are attempting to integrate as ours, under the processes of learning. "*The thing is conceived as the passive, the inert, the unresisting other or counterpart to the subject, consciousness or mind, that is, as matter, substance or noumena. The thing is that against which mind is understood, its other or object*".³⁸ There is another less systematic and more submerged tradition of the thing within the history of philosophy, where "*the thing, not as 'other', but as provocation or incitement for the subject: the thing is that which prompts us to act, to invent to practice to extend ourselves beyond ourselves*"³⁹. And this is the idea about 'the thing' that I am following. As Ranulph Glanville also suggested, by trying to set up frameworks in education, within which other people could find their own way and express their creativity⁴⁰, there might be a way to find ourselves beyond of us. In this manner "the thing"⁴¹, outside of us, becomes divided or duplicated, where the other is the given as the starting point of life, from which humanity has also emerged. Therefore, experimentation is necessary in finding "the thing" or the knowledge that will generate motives in design.

By looking at kids and how they approach the world without knowing how 'things' work, they manage to co-operate and develop their own understandings. The way they achieve this is through interactivity and experimentation with 'the other'. Through the act of play - the uncertain conversations they develop with the world- kids test not only the things outside of them but also themselves in these things; in situations they are not used to be in. That is how kids reach the world outside of them and generate new ones, by considering information, by thinking how they can act upon and by constructing their actions developing interactive experimentations with it. Accordingly to the, I believe that question raised from educators should put students in a thinking process where they reconsider, rethink and reconstruct what they already know of the world. I suggest that this method can assist in one to develop critical thinking. To understand causality and learn how to manage it. in order for students to test and verify their knowing, they need to understand causality and learn how to manage it.

³⁸ Grosz Elizabeth, *Notes on the Thing*, p 78

³⁹ Grosz Elizabeth, *Notes on the Thing*, p 78

⁴⁰ Glanville Ranulph, Lecture: Freedom and the Machine

⁴¹ Again, the thing is also the product, the outcome and the effect of the living - "*where Marx refers to as the commodity and Bergson as the object. The thing can be seen as both pre and post-technological, therefore, it is the thing that generates the new, through technology and from the news, the thing is constructed, where technology finds given and remarked as it's own*", Grosz Elizabeth, *Notes on the Thing*, pp 78-79

Perceptual knowledge:

In order for one to understand causality and use the methods approaching it towards possible future situations, perceptual development in reaching the world -how we perceive information and use the upon an environment- give us genuine knowledge of the external world. Perceptual knowledge must be grounded in direct acquaintance with something. We are not directly acquainted with physical objects, but only with our experiences. Thus, beliefs about these experiences must serve as the foundations of perceptual knowledge. Based on foundationalism⁴² as explained by Lyons, I would also argue that the empirical foundation in the settings of architectural education must consist of the most highly justified contingent beliefs, and these are appearance beliefs. We can and do articulate beliefs about our experiences in defence of our perceptual beliefs when challenged; so these appearance beliefs must be at least part of our evidence for the perceptual beliefs. Perceptual beliefs about external objects are not self-evident (if they were, they would be justified whenever held), so they must be based on some other belief; *"the only candidates are appearance beliefs, which plausibly are self-evident"*.⁴³ Thus appearance beliefs can be an effective gateway to grounding perceptual knowledge.

Educational strategies through uncertain conversations- Conversation Theory:

Knowledge in general, derived from both learning and teaching strategies, are required to be substantially exteriorised or externalised for observation, in the process of architectural education. The outcome of what might be learned, through opening learning and teaching strategies, should therefore be open to continuous evolution, as further topics and relations between them are added by learners and the ways they perceive the world. I believe that this outcome should be manipulable systematically and without the imposition of rules that insult freedom of thought or creativity. The contribution of external topics that, each individual involved can offer, are seen to develop ideas beyond the outcomes we expect in seeing. *'Entailment mesh'*⁴⁴ as explained by Kallikourdis, Scott, and Pask, recognises that the entailment of one's topic, from other's proposed, is a momentary situation that occurs during action or explanation or 'conversation theory'; in fact, the relationships between topics are not *static and hierarchical and thus can generate new topics in the minds of others*.

Conversation Theory which is a model of what underlies cognitive activity, it is not a model of logic or language itself but rather a "substrate" for them. Its rules involve the processes by which, for example, the normally heterarchical relationship between topics unfolds into hierarchies. Its details encompass conflict detection and resolution, analogy, generalisation, and models of innovation and memory, both from the speaker and the listener involved. 'Conversation Theory' has been a summarisation of what Pask, Kallikourdis and Scott have come to propose, what design outcomes were seen to be; manipulable systematically and without the imposition of rules that insult freedom of thought or creativity (in about the mid-1970s), and the then called "entailment structures". Conversation theory is a structure that consists of topics and connections among topics which show how they may be derived, or understood from other topics, or

⁴² Lyons Jack, in his online publication Epistemological Problems of Perception, explains the idea of 'Foundationalism' as the view that some beliefs are epistemologically basic- their justification does not depend on evidential support from other beliefs- and all other beliefs ultimately derive their justification from basic beliefs. Classical foundationalism is the view that it is appearance beliefs-, beliefs about perceptual appearances-that are basic, and perceptual beliefs about ordinary objects are based at least partly on these is defended in one of several ways.

⁴³ Lyons Jack, *Epistemological Problems of Perception*

⁴⁴ Kallikourdis, Scott, and Pask discerned that "'entailment structures' are special and restrictive cases of 'entailment meshes,' in which shared, public concept relations constitute expressions in a 'protologic'" Pask, 1975, Pask & Scott, 1973; Pask, Kallikourdis, & Scott, 1975

other beings; such as representations of topics in educational environments of architecture -communicable, shared, or public concepts, rather than personal concepts.

*“Conversations are behaviours, but special kinds of behaviours with hard-valued observables in the form of concept sharings, detected as ‘understandings’. Conversations involve the first basic data of psychological, social, or educational theory.”*⁴⁵ We see that people can even have conversations with them-selves; conversations, which may lead to concept sharing and are not verbal. An understanding, of one’s mind logic, involves not only the topics that are related and their relationship, but the ability to transfer and apply the relationship to new situations, through conversation development. Therefore, the ability for an individual to develop conversations and share them accordingly for other to understand it, is an ability that educational environments should teach future designer, their students.

An “agreement over an understanding” is a hard-valued event that can be detected in an experiment, which is something that needs to be specified by the conversation developed between entities involved in it. Agreement involves individuals, each of whom exteriorises his or her understandings and confirms that the other’s entailments reproduce his or her own, previously internal, concepts. Therefore, what I attempt to explain here is the that two entities involved in a conversation should arrived to a mutual understanding, something that also Glaville expresses in his lecture *Freedom and the Machine*⁴⁶.

The entailment mesh constitutes a network or map of topics which have no hierarchy or direction. Paths, on the map of ones educational journey, are a learning strategy or a teaching strategy.⁴⁷ A learning strategy or a teaching strategy consists a path on the map, marked to indicate specific conceptual events like examining, trying to learn about learning about one’s topic (shared concept). Therefore, ‘conversation theory’ offers one such broader perspective when understanding a topic in the related context of others, from which it may be constructed, implements reconstruction or recalling of one’s acquired knowledge. Theoretically, one individual is specified as partly autonomus. It is partly autonomous because he for she is open to the information transfer of a concept-sharing conversation between persons, or between mental organisation in one person.

⁴⁵ Pask Gordon, *Learning Strategies, Teaching Strategies, and Conceptual or Learning Style*, p 83-85

⁴⁶ Mutuality of understanding, bringing both understandings as close as possible. Glanville Ranulph, Lecture: *Freedom and the Machine*, UCL 2010

⁴⁷ Pask Gordon, *Learning Strategies, Teaching Strategies, and Conceptual or Learning Style*, p 83-85

SECOND-ORDER CYBERNETICS - Ethical systems of control in Uncertain Conversations

Such a broad perspective proposed by conversation theory and is essential to be adopted both, from the position of the speaker and the listener -or the student and the educator- in order to allow one of the symmetries of Conversation Theory to exist. Accordingly, in order to test whether an individual's autonomy is responding to the requirements of an other's logics the development of a system of control is required. Such system is proposed as the major theme of Ranulph Glanville's research, under the term Cybernetics. Glanville explained the intimate relation between cybernetics and design, the two principle disciplines that he has worked in and contributed to⁴⁸ and I am using this analogy as well as its significance, to point out a methodology of extracting principles and processes from cybernetics to architecture education through design.

To explain further the term cybernetics and the ways I propose it here, I argue that in conversations between student/designers and educators/design "interaction involves goals, feedback, and learning, the science of which is cybernetics".⁴⁹ Cybernetics focuses on the possible behaviours of its variables rather than their material presence.⁵⁰ Cybernetics is "the science that studies abstract principles of organisation in complex systems"⁵¹ - and applying them into other systems such as that of education and design. I emphasise connections with two of Ranulph's other major concerns within cybernetics: (1) with answering Margaret Mead's (1968) challenge that we practice cybernetics in accordance with its ideas; and (2) with the relation between cybernetics and ethics⁵². The most notable proposal by Glanville in architecture is to see design and cybernetics not just as being related but as closely paralleling each other, to the extent that "cybernetics is the theory of design and design is the action of cybernetics"⁵³.

Framing undecidable questions, as I proposed in the previous chapter, requires making explicit one's values and viewpoints, accompanied by the responsibility to justify them with explicit arguments; this incorporates subjectivity and the epistemology of second-order cybernetics. "To observe in the mode of second-order observation is to distinguish distinctions [...]"⁵⁴ "The unobservability of first-order observation thus becomes observable in an observation of the second order - on the condition that the second-order observer, considered as first-order observer, can now observe neither his/her own observing nor him/herself as observer. A third-order observer can point this out and draw the autological conclusion that all this applies to him/herself as well".⁵⁵

If second-order cybernetics, then conversation. Second-order cybernetics frames design as conversation. This creates the conditions for learning together and thus better-directed, more-deliberate actions. And because it is conversation that leads to learning and effective action, the key focus for designers must ultimately be to design for

⁴⁸ Sweeting Ben, Conversation, Design and Ethics: The Cybernetics of Ranulph Glanville. *Cybernetics and Human Knowing*, 22(2/3), pp. 99-105 (2015)

⁴⁹ Dubberly Hugh and Pangaro Paul, Cybernetics and Design: Chapter 3, Conversations for Action, Conversations For Design, p 59

⁵⁰ Ashby, R., *An Introduction to Cybernetics*. 1957, London: Chapman and Hall Ltd.

⁵¹ Heylighen, F. and C. Joslyn, *Cybernetics and Second-Order Cybernetics*, in *Encyclopedia of Physical Science & Technology*, 3rd ed., R.A. Meyers, Editor. 2001, Academic Press: New York. p. 2

⁵² Glanville Ranulph, 2005, 2004/2009)

⁵³ Glanville, Ranulph. *Try again. Fail again. Fail better: The cybernetics in design and the design in cybernetics*. *Kybernetes*, 36(9/10), p. 1178

⁵⁴ Luhmann Niklas, *Art as a Social System*, translated by Eva M. Knodt, pp 57-63

⁵⁵ Luhmann Niklas, *Art as a Social System*, translated by Eva M. Knodt

conversation. Conversations are everywhere, and our minds are “observing systems” developing conversations in order to make sense of things. These observing, or controlling, systems is what Cybernetics is dealing with. The way Norbert Wiener defined it in 1948, Cybernetics is “the scientific study of control and communication in the animal and the machine”⁵⁶. The prototype example of Cybernetics is steering a ship. Where, as the pilot, I can adjust the rader when I face a danger in the sea, or when I realise that the direction of my ship is not moving towards my target. That is how one action is effecting my following actions, and how we end up having a “circular feedback of causality”. This is second order of Cybernetics; “Observing systems” of “observing systems”. An example is architecture schools, where we are surrounded by fellow students and teachers, to whom, we explain our ideas to.

Conversation or interaction is what is going on all the time and what controls our future actions: While having one to one verbal tutorial, by pinning up drawings for presentations or, while students are working on drawings and models in the shared design studios. We learn what we have done by the way others react to it. Feedback is everywhere. This is what conversation is, it is a controlled and communicative system, just like Cybernetics. In a conversation we constantly observe and check that we understand each other. We check whether our ideas and the means we are using to pass our ideas to others, are making sense. Through conversations and by receiving feedback, we start to see through someone else’s eyes, and start discovering possibilities of our own work, we haven’t intended. This is “Architecture of Conversations”. To annotate a conversation between two individuals (designer and co- designer) giving rise to an environment; an external observer (such as tutor or fellow student), can attribute intelligence to this environment (by giving input to a design). What mediates between action - interaction, in a conversion and decision making, is feedback. Including observation, evaluation and iteration. A process that teaches us what we did not know we are capable of doing. So, conversations are thinking or interactive processes of learning, resulting in a circular system of causality.

Conversations involved in architectural education are “*considered as seeds that spread ideas in the process of becoming in architecture -singularity in-between complex systems and architecture that seek to distinguish between generativity for the process of being in architecture and generativity for the process of becoming*”⁵⁷. Design grounded in argumentation requires conversations so that participants may understand, agree, and collaborate on effective action - that is, participants in a design conversation learn together in order to act together.⁵⁸ Dubberly and Pangaro see cybernetics as a way of framing both the process of designing and the things being designed, such as design education - both means and ends - “*not only design-as-conversation but also design-for-conversation*”⁵⁹. Second-order cybernetics frames design as conversation, and they explicitly frame “*second-order design*” as creating possibilities for others to have conversations.⁶⁰

The claim of Glanville connecting closely design and cybernetics rests on a close analogy between the sort of conversational circularity with which cybernetics is concerned. As explored, especially in Pask’s (1976) ‘*conversation theory*’, and the distinctive way in which designers work, it is particularly evident in characteristic methods such as sketching, as well as more generally in modelling and drawing that conversations take

⁵⁶ Wiener Norbert, *Cybernetics: Or Control and Communication in the Animal and the Machine*

⁵⁷ Murrani Sana, *Architecture of Generative Situations*, p. 419

⁵⁸ Dubberly Hugh and Pangaro Paul, *Cybernetics and Design: Chapter 3, Conversations for Action, Conversations For Design*, p 59

⁵⁹ Dubberly Hugh and Pangaro Paul, *Cybernetics and Design: Chapter 3, Conversations for Action, Conversations For Design*, p 59

⁶⁰ Dubberly Hugh and Pangaro Paul, *Cybernetics and Design: Chapter 3, Conversations for Action, Conversations For Design*, p 59



Gordon Pask with his mind model drawing attempts to explain that even one, creates characters in their head, aiming to generate dialogues in order to process information.

place in design process. Indeed, the ways designers work are often understood as conversations, conversations they hold with themselves and others, such as, for instance, in the account given by Donald Schön, who characterises design as a “*reflective conversation with the situation*”⁶¹.⁶²

The activities of conversation and sketching both share a circular form. In sketching, this circularity is created by our shifting perspective between looking and drawing in a way that parallels the turning around between listening and speaking in a conversation⁶³; such as that between a student and a teacher. This enables evaluations of previous actions to influence present ones in a classic example of cybernetic feedback. The significance of this structure, however, goes beyond a cycle of iterations in pursuit of some goal, such as learning. Just as a conversation, because of its interactive structure, tends to lead somewhere we could not have predicted in advance, so too the conversational interactivity of students’ drawing and modelling is one way in which they create novelty⁶⁴ and is what allows them to work in the complex situations which they commonly encounter or that they will encounter as future designers⁶⁵.

This tendency towards the creation of the new in a conversation follows from the way that meanings are not transferred between participants but, rather, participants construct

⁶¹ Schön, D. A. (1991). *The reflective practitioner: How professionals think in action*. Farnham: Arena p. 76 (Original work published: 1983).

⁶² See also the accounts of Cross (2007), Gedenryd (1998) and Goldschmidt (1991). Ranulph also notes a number of other parallels, such as a shared attitude towards error as neither good nor bad but endemic and a mutual concern with constructing the new, but these can each be traced back to the conversational analogy.

⁶³ The etymology of conversation reflects this, to converse being “to turn about with”.

⁶⁴ The importance of novelty to designers follows from their concern with transforming existing situations into new ones. Ranulph also associates novelty with “delight”, one of the key characteristics which architects try to achieve in their designs, dating back to Vitruvius’ *Ten Books on Architecture* (I.iii.2, trans. p. 1624)

⁶⁵ On design as an approach to complexity, Sweeting Ben, *Conversation, Design and Ethics: The Cybernetics of Ranulph Glanville*

their own understanding of the understanding of others, with the process taking the recursive form of “*what I think of what you think I think, etc*”⁶⁶. For instance, if, in a simple conversation between educator and student, student begins by presenting some ideas, the educator does not simply have this transferred to them but builds their own understanding of what it is that the student means. They then present what they have understood back to the student, again, the student constructs their own understanding of their presentation. The student can then compare this understanding (what I understand of what they understood) to what they originally meant to communicate. (see the diagram given in Glanville’s Ranulph, *The Black Box vol 3: 39 Steps*, edition echoraum, Vienna, p. 432)

While we can repeat this process in an attempt to align these separately constructed understandings, it is not just (and often not even⁶⁷) a way to reach agreement about existing ideas, where there is not right or wrong but, and more significantly in terms of the parallel with design, a way to generate new ones. Given that the difference between what participants understand is maintained throughout, we construct new understandings at every turn. We learn from the ideas that others present to us and from their comments on and criticisms of our own thoughts. **We also often learn through misunderstanding**, where we see a worthwhile idea in what someone says that was not intended. Perhaps most simply, **we learn what is implied by our own ideas by seeing how they are interpreted and understood by others**. This also occurs in conversations we hold with ourselves, as for instance in sketching.⁶⁸ When sketching, the designer simultaneously plays the roles of speaker (drawing) and listener (looking), switching roles between the two. Looking at what they have drawn they see some new possibility not previously intended and which can be developed further⁶⁹. In this sense students’ drawing is an integral part of their thinking, not a representation of ideas constructed previously.

While in one sense the feedback process of sketching allows students/designers to pursue some idea, as with conversation, this idea is not fixed at the outset but is developed through the process.⁷⁰ As Denys Lasdun (1965) put it, in remarks which are often quoted, the architect’s “*job is to give the client, on time and on cost, not what he wants, but what he never dreamed he wanted and when he gets it, he recognises it as something he wanted all the time*”⁷¹. While this is sometimes read as a paternalistic claim to genius or expertise, it is better thought of as indicating the way that, in trying to achieve some idea, we revise not just the attempt to fulfil it but also the idea itself, having learnt more about it and the situation just as a conversation changes course through our participation in it.⁷² Indeed, Lasdun’s remark can be extended to apply as much to designers/students/educators as to their clients/educators/students, with new possibilities created as part of the process which designers could not have anticipated in advance.

⁶⁶ Glanville, Ranulph, Pask: A slight primer. *Systems Research*, 10(3), p. 217.

⁶⁷ While we can try to reach agreement, we will often abandon the attempt either through frustration or, alternatively, through the agreement to disagree (Pask, 1988, p. 85).

⁶⁸ In Pask’s conversation theory, the psychological-individuals, the participants in a conversation, are not in one-to-one relationship with the mechanical-individuals in which they are embodied. One may therefore have a conversation with oneself (as in sketching) taking different points of view in turn, while a group or organisation may act as one participant.

⁶⁹ Glanville Ranulph, *Try again. Fail again. Fail better: The cybernetics in design and the design in cybernetics*, *Kybernetes*, 36(9/10), p. 1189

⁷⁰ “That is, the conversational circularity of cybernetics is not optimisation, which, as Negroponte has noted in 1975, is something ‘extremely antagonistic to the nature of architecture’”. Brier Soren, Guddemi Phillip, Kauffman Louis H., *Ranulph Glanville and How to Live the Cybernetics of Unknowing*, Volume 22 p 189.

⁷¹ Lasdun, Denys, An architect’s approach to architecture, p 185

⁷² In the same article, Lasdun also notes that the “worst work our office has ever produced” is the “competition work where there is a programme which is half-baked and there is no exchange of ideas” (p. 195); that is, where there is no client with which to converse (see also Cross, 2007, p. 52; Glanville, 2009b, p. 427).

CULTIVATING ETHICS in systems of control, to guid education in architecture

A conversation or interactivity, as seen in the previous chapters, has ethical implications of how to behave to each other. Speaker and listener are responsible to each other. By respecting the other -what is outside of us- by giving value and respect to the difference and to what it is, leads to mutuality and sharing; something that therefore leads to the birth of the 'new'. Cultivating ethics through design teaching/thinking towards design practice, I follow the ideas of Foucault on the topic of ethics. He framed ethics as a creative activity in which one shapes one's self. This idea suggests that architectural education should not fall out of the umbrella of creativity and experimentation or the act of play.

On the other hand, for Deleuze, ethics is an activity in which one creates concepts in philosophy and sensations in art, shaping the event in these creations. By uniting the two, we can understand creative self- relation as expressive of the fluidity of life and therefore the way of emerging elements in the work for the sake of creation. Expressive creation (design), necessarily, entails transformation of the creator; the self (designer). Moreover, we can discern a shared norm at work in Foucault and Deleuze's ethical thought. Insofar as ethics is a creative stylistic and expressive activity, it demands openness and mobility; so as the approach towards architectural design, rooted in architectural education. In more conventional terms, educational approach in architecture, towards a new design of minds, demands responsive freedom.

Continuously, I advance the claim that, in addition to being creative and critical, Foucaultian-Deleuzian ethics also involves the activity of problematisation. The notion of problematisation makes a substantial contribution to our understanding of ethics as a critical practice and to comprehending the nuances of its normative salience. Ethics as a matter of the practices through which one relates to and constitutes oneself to Deleuze and Guattari's thought. An "essential principle" of this guide proposes that "[i]t is the connection of desire to reality ... that possess revolutionary force."⁷³ This tenet unites Foucault and Deleuze's understanding of the sense of ethics, finding it both in critique of and resistance to the limitations of the present, and in the vital tie between that present reality and the forces that propel us beyond it.

"Ethics" and "ethical" are terms which can be used in many different ways and which can therefore become confusing. In the context of architecture, speaking about ethics can sometimes come across as being worthy or even judgemental. This is not the sense in which I mean it. Part of the confusion is the way that we can use these terms to refer both to our personal conduct and also to deliberating about that conduct. When we refer to the ethics of our actions, we can sometimes mean the values which our actions embody or the principles which we try to uphold in them; sometimes referred to as 'morality' by Sweeting Ben⁷⁴.

When we call an action "ethical" in this sense, we mean that it is an action which involves ethical considerations (that is, in the sense of ethical philosophy or ethical questions raised by an educator or a student) rather than that we judge it as being in accordance with some principle or value. It is in this sense of actions which involve ethical questioning, rather than in the sense of what may or may not be a good answer to such questions, with which I am concerned. Continuously, I claim that epistemology of cybernetics is implicitly ethical and I do not mean that the practice of it accords to some set of values but, that it should involve ethical questioning for each entity to respond accordingly; self-referred .

⁷³ Foucault Michel, *Preface to Anti-Oedipus: Capitalism and Schizophrenia* by Gilles Deleuze and Félix Guattari

⁷⁴ When we say that an action is ethical upon a design, in this sense, we mean that we judge that it is good or right in the sense that it conforms to whichever values or principles we choose to judge or justify it with. In this sense, by an "ethical action" we mean a "good action". It is not with questions of this order, of what comprises a good action in a situation or with what standards or criteria are to be invoked to make this judgement, that I am interested here. A different sense of "ethics" refers to the activity of making such judgements and to the question of how to go about doing so. This can be meant in both a philosophical and a personal sense (and these two coincide to some extent because adopting any philosophically derived principle can only be done personally). Sweeting, Ben, 2010 and von Foerster, Heinz, 1991

With the completion of this essay I seek to develop the sense of ethics as an activity of thinking and designing, that entails responsiveness to reality as an integral part of the educational processes in architecture. The question of whether epistemological questions have right answers rests on the acceptance or otherwise of realism; “the idea that our experience of the world is one that corresponds to how the world is beyond this experience”.⁷⁵

Both, designer and educator have the capacity to observe and develop mechanisms where they guide the expression of forms and thoughts from the opposite entity, to unfold and develop ‘conversations’ that might lead to the creation of new conversations, via inhabitation. Based on observation, feedback, interactions and respect, some principle unfolded in ethical systems of control, proposed as mechanism to contribute into the reconstruction of educational processes in architecture.

Educators should take advantage of the skills (as medium, tools) and perceptions of their student’s vision, to draw upon, to generate design of thinking minds. Seen the process of architectural education in a similar manner, considered as a unique experience for every student and every future architect, it should be placing its focus on designing brains. By designing minds’ responsiveness, not only able to co-operate with problem solving but to take advantage of each situation’s problems that might be turned into opportunities and each individual’s skills, mindset and past experiences, away from standardised framed paths seen as “norms” patterns towards architectural design. In other words educator’s responsibility is to develop conversations with their students. Thus, through the act of play we also develop ourselves, through experimental interactivity and conversations we have with the other, with the given environments and the world at large.

By taking in consideration that there is no ending or a thorough image of an individual, based on a monumental experience, but only its constant becoming. The outcome of an individual’s thought can not be expected, neither read, in the way that had been thought but, only by experiencing through interacting with it and developing a thorough understanding. We can not fully understand and relate to a final piece of thought, space, or individual if we do not observe, interact and live the process of its path to become what it is.

Through the process of testing, or the act of play, and by finding the freedom desired, designers can distinguish what their responsibilities are towards a given environment. The temporal dimension of this process lays the very conditions of possibility of the future and hence of futurity as such. The production and expression of positive affective stages, is what makes the subject of creativity in architecture endure: it is like a source of long-term energy at the effective core of subjectivity. Since creativity, is one of the main qualities we admire and look for in a good designer, ‘the act of Play’ or conversation developments and the experience as an outcome, should be used as a go-to principle to be followed by both educators and students, framing design practice and architectural education.

In order for (new) architect to come out of their educational journey ‘autonomous’ and self-generated, questions in architecture’s educational environments are not meant to be determined, they are not meant to require right or wrong answers rather, they must set undecidable questions for the learners to interact -to test, to observe and to react- in order to develop their own path and find their own truths⁷⁶. A question should not be

⁷⁵ Sweeting Ben. *Architecture and Undecidability*, page 17

⁷⁶ Colebrook Claire, *Leading out, leading on: the soul of education*, Nomadic education, Vol. 18, 2008: p 35

asked for the sole purpose of being answered correctly, it should also be asked so that it is open to a variety of answers. The possession of an undecidable question thus, result in putting the other entity into the process of reconstructing ones knowledge that is already possessed, thus achieving both creativity and innovation in decision making. Therefore, ethical responsibility is proposed to be applied in designing educational approaches, both from the side of the students and the side of the educators -by understanding "*there to be ethical aspects to design's own disciplinary foundations*"⁷⁷. Education should built trust between entities involve, in order to reinforce trust towards oneself.

⁷⁷ Sweeting Ben, *Architecture and Undecidability*, p 20

Books:

1. Bateson Gregory, *Steps to an Ecology of Mind*, London: Jason Aronson Inc. 1987
2. Brier Soren, Guddemi Phillip, Kauffman Louis H., *Ranulph Galnville and How to Live the Cybernetics of Unknowing*, Volume 22, Andrews UK Limited 2015
3. Braidotti Rosi, *Deleuze and Philosophy, The Ethics of Becoming Imperceptible*, Edinburgh University Press 2006
4. Cook Peter, *Drawing: The Motive Force of Architecture*, London: John Wiley & Sons 2008
5. Deleuze Gilles, *The Funambulist Pamphlets Volume 3, Control & Becoming: A Conversation between Negri and Deleuze*, Brooklyn, New York: The Funambulist + CTM Documents Initiative 2013
6. Foucault Michel, *Ethics "L'éthique du souci de soi comme pratique de la liberté,"*: "The Ethics of the Concern for Self as a Practice of Freedom", New York: The New Press 1954-1984
7. Foucault Michel, Preface to *Anti-Oedipus: Capitalism and Schizophrenia* by Gilles Deleuze and Félix Guattari, Minneapolis: University of Minnesota Press 2003
8. Heyes Cressida, *Self- Transformations*, Oxford University Press 2007
9. Liantinis Demetris, *Homo Educandus*, Athens: D.Liantinis Press 2006
10. Luhmann Niklas, *Art as a Social System*, translated by Eva M. Knodt, Stanford University Press in 2000
11. McWorter Ladelle, *Bodies and Pleasures: Foucault and the Politics of Sexual Normalization*, Indiana University Press 1999
12. Pask Gordon, *Learning Strategies, Teaching Strategies, and Conceptual or Learning Style*, based on book series *Perspectives on Individual Differences*, Boston, MA.: Springer 1988
13. Schön, Donald. A. *The reflective practitioner: How professionals think in action*, Farnham: Arena 1991
14. Sweeting Ben, *Architecture and Undecidability*, University College London 2010
15. Sweeting Ben, *Conversation, Design and Ethics: The Cybernetics of Ranulph Glanville*, University of Brighton 2015
16. Von Foerster Heinz, *Through the eyes of the other*, In F.Steier(Ed.), *Research and reflexivity*, London: Sage Publications, 1991
17. Wiener Norbert, *Cybernetics: Or Control and Communication in the Animal and the Machine*, Cambridge, Massachusetts: MIT Press 1948

Essays/Articles:

18. Dubberly Hugh and Pangaro Paul, *Cybernetics and Design: Chapter 3, Conversations for Action*, Conversations For Design, Springer Verlag Preprint, 2019
19. Grosz Elizabeth, *Notes on the Thing*, pp 78-79, MIT Press 2002

20. Heylighen, Francis and Joslyn Cliff, *Cybernetics and Second-Order Cybernetics*, in Encyclopedia of Physical Science & Technology, 3rd ed., R.A. Meyers, Editor, New York: Academic Press 2001
21. Lasdun Denys, *An architect's approach to architecture*, RIBA Journal, 72(4), 1965
22. Glanville Ranulph, *Pask: A slight primer*, Systems Research, London: John Wiley & Sons, Ltd 1993
23. Glanville Ranulph, *Try again. Fail again. Fail better: The cybernetics in design and the design in cybernetics*, Kybernetes, Emerald 2007
24. Murrani Sana, *Architecture of Generative Situations*, Milan: Domus Argenia Publisher 2010

Online Publications:

25. Lyons Jack, *Epistemological Problems of Perception*, Stanford Encyclopedia of Philosophy, 2017 (<https://plato.stanford.edu/archives/spr2017/entries/perception-episprob>)
26. Sdoutz Franz, *The Autopoiesis of Architecture 2014* (http://www.mediaarchitecture.at/architekturtheorie/bikini_bottom/2011_bikini_bottom_en.shtml#fu_me)

Lectures:

27. Bateson Mary Catherine, *Cybernetics in the Future* - Introduction, at the conference of the American Society for Cybernetics at George Washington University in Washington D.C, American Society for Cybernetics - ASC 2014
28. Glanville Ranulph, *Freedom and the Machine*, American Society for Cybernetics - ASC, at the Bartlett International Lecture Series 2010
29. Glanville Ranulph, *How Design and Cybernetics Reflect Each Other*, at the Relating Systems Thinking & Design 3 Symposium, American Society for Cybernetics - ASC 2014

Interviews:

30. Sweeting Ben, *Catching up with...Ben Sweeting*, University of Brighton 2019