From Objects of Sensation to Objects of Thought: Construction of the Space & the Text

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In the most basic definition, the activity that a concrete object forms in the human mind is defined as a '***perception***,' whereas the activity that an abstract object forms in the human mind is defined as a '***thought***.' While the perception is both a problem of intuition and cognition, the thought may be accepted as only a problem of cognition and comprises all mental incidents directed to the knowledge. *'This entirety includes all the facts of consciousness like perception, sensation, comprehension, requisition, contemplation, and visualization.'* [1]. To enable thought, perception has to be realized first. From this point of view, the thought –from the perspective of the empiricists– is regarded as relevant to the ***experience***.

When the perception and thinking activities are entreated specific to the Space Design Education, it may be accepted the First Grade (basic) studio is based on perception focused studies. Various studies based on being able to query and discuss the parameters that built the space and the space perception, in fact, aim to make the student gain awareness related to the outer world and her/his inner world, not to teach something she/he doesn't know. "*Getting her/him to query the principles based on the images that the sensory experience reveals in consciousness"* [2] will also be the prerequisite to enable the student to develop a 'new language' and communicate through this language.

As the student's experience in solving a design problem and know-how related to

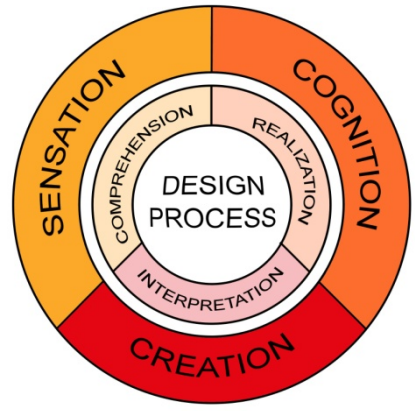
the field increase, the design language that is expected to evolve in her/him will become more competent, and the thoughts expressed with this language will start to deepen. By this competence, the thought can turn on itself, making it possible to generate information about its actions [3]. The student will be able to produce –a double layered– thought based on her/his thought which is the source of her/his actions only when she/he can ***transform*** her/his ***objects of sensation to the objects of thought***.

This study aims to present the ***design knowledge*** produced by a student in the First Grade Design Studio at 2018-2019 Academic Year in the Undergraduate Program of TOBB ETU, Department of Interior Architecture and Environment Design, and the ***design thought*** by the same student in the same context as a result of two-year experience. Both projects to be identified by associating each other are based on the same inductive method and the traceability of the process has been the basis in both of them. Here, the first action is concluded as the construction of a 'space' and the second action is concluded as the construction of a 'text.' In this context, with the first study it was intended the student generate thought, and with the second study, it was intended the student can capture a outlook in her/his mind by generating the thought of her/his thought.

1. Introduction

The First Grade Design Studios where the foundations of the design education are laid create a new activity field directing the student from passive thinking to active thinking. Regardless of the parameters in which the content is defined, the student is expected to switch to a new action-oriented thinking system through the current thinking patterns. This system creates a value for not solving a variety of design problems; but also for the ability of the student to look at the worlds outside and within; and in the intersection of these two areas, and create alternatives to her/his way of being.

These values, which can be read through concrete parameters such as responses to design problems, define a cognition triggered by a sensation in the design process, a new invention based on this cognition, a continuous cyclic structure [4]. The values whose indicators can be read through abstract parameters like the perspectives and attitudes developed for design problems –just as it can be observed in concrete parameters– point to the same circular structure, with an awareness triggered by the understanding of the environment in which it is present, and with a new interpretation based on this awareness.



(Figure 1)

Figure 1. Design Process

Both the answer to the problem and the attitude developed for the answer are the traceable and untraceable actors of the design process. Both are developed by personal experience and skills; any sensory input recorded through awareness creates a new image in the mind by associating with past experiences. These images are the result of the exchange between the space and the subject. While space creates its own sensation, the subject reflects her/his own perception onto the space [5]. This space causes an impression to be produced by the perception if it has a physical definition that can be explained by concrete parameters, and by the thought if it has a conceptual definition that can be explained by intangible parameters. For this reason, the subject of the cycle in question is space perception/space thought, which undoubtedly constitutes the basis of this study.

The First Grade (Basic Design) Studio is an environment where awareness of the depth of the concept of space is just beginning to be gained. The ability of the student to create her/his definitions will only be able to turn into an awareness/cognition as a result of her/him being able to link the concepts she/he is exposed to with her/his own experiences. Therefore, space is approached based on the perspective of the empiricist: According to this, space is a subjective reality that is understood through the senses [6]. Thus, each suggestion made to define the space will require that the student who created it to be aware of her/his mental processes and make it traceable.

The First Grade Design Studio carried out under the coordination of Şaha ASLAN, in the Undergraduate Program of TOBB ETU, Department of Interior Architecture and Environmental Design Department since the 2015-2016 school year, ***builds its approach upon the student acquiring the ability to structure her/his thought string.*** The space at the focus of the thought essentially creates both a field of material and an emotional field with its form. These two concepts, which cannot be treated individually, require both sensory and intuitive perspectives. For awareness development in this context, an analytical approach to the subject will liberalize the studio environment so that each student can define her/his perspective.

The mentioned study includes a proposition on how the students can produce the **design thought** they have built with their subjective experiences in the first year of their education through the **objects of the senses**, and the **designer perspective** they have built with their awareness gained over a four-year training period through the **objects of thought**. In the first of these propositions, the space becomes meaningful through the material substance and in the second through the correlations established through a text.

The necessity for the representation of both propositions as a text has been resolved by two interlaced text constructs in the paper. The sensory pattern to be defined within the scope of ‘Objects of Sensation’ (through the writing of the class coordinator and the work of a student) is the conceptual structure of the textual pattern to be defined within the

scope of ‘Objects of Thought’ (written by the same student). With this information, the reader can jump to the conclusion by bypassing ‘Objects of Thought,’ if desired or consider this title as an independent section.

2. Objects of Sensation: Construction of Space

Design thought needs an active action-based thought environment, not a passive one. A photograph is one of the most effective tools that can lead a mind that has not experienced thinking by doing.

With its very strong relationship with time and space concepts, photographic image represents a moment fixed in the fluidity of the time, in which the subject's act of seeing is represented by ***camera obscura***. With its status as the only tool in which vision can be understood and represented, between the 16th and 19th centuries, camera obscura is regarded as a way of objectivizing the individual cognitive process where sensory data turns into perception and interpretation. The ***photographic image***, as a product of 19th-century industrial society, defines reality through visibility, and creates a match between the two concepts [7].

The transformation of spatial space into a photographic image by reducing it to two dimensions with a tool, in other words, the transformation of the physical reality of the space into an illusion and disappearance of its depth, creates a very valuable environment for the subject to gain awareness of the dimensions he did not realize while fixing this image and to generate ideas about what is objective. Thus, she/he will have the opportunity to show her/his (objectiveness) view/stance in the (objective) image fixed by reconstructing the image.

The lack of experience of the individual who will create design ideas (in the context of the First Grade Design Studio) in producing this idea influences the way the space is constructed in the said studio work, by not building it from scratch, but reinventing (transforming) the existing one. Thus, the rebuilding of the physical space discussed will require the identification of the elements that make up the existing, in other words, the identification of the objects of the sensation.

Creative Species (2017) written by D. Eagleman who carries out his studies in the neuroscience field at Stanford University in company with A. Brandt, the composer, and composition and theory professor, suggests that the human mind produces information through remodeling activity by feeding on raw material like experience, memory rather than creating innovation from the void, and defines this activity through three methods [8]:

- BENDING process in which the event is portrayed in new ways,
- FRAGMENTATION process where the event is broken and a new whole is created from the parts,
- BLENDING process where two or more resources are combined in a new way.

Bending, fragmentation and blending are the tools of the brain to transform concepts, events, and situations. The activity of these tools references that the environment is regarded as a set of

possibilities that produce alternatives (subjective) and not as a set of (objective) facts in which it is presented as patterns.

'*Considering what is available and creating different reality options by converting it into a series of possibilities*,' [8] evaluating sensory data as an operating system rather than a kind of recording device, '*remodeling what is present*' plays a decisive role in the mentioned studio's perspective on the design problem. In this context, the studio defines the concept of *creativity* from its infinite definition as '*not inventing what is not present but creating new relationships between what is present.*' [9]

At this point, the identification of the elements that create the space, and the space expected to be rebuilt on a single type of relationship selected among the network of infinite relationships between these elements are ready to focus on 'how' the mind that produces it thinks, rather than 'what' it thinks, and to comprehend what is there and to produce possible alternatives.

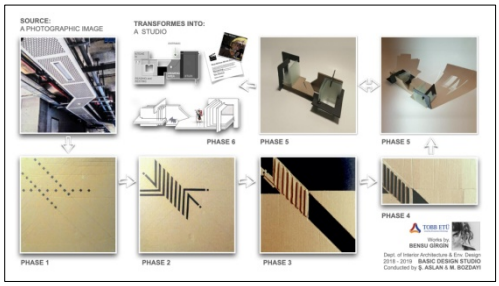


Figure 2. Construction of the Space.

As part of the Basic Design Studio carried out under the coordination of Şaha ASLAN, in TOBB ETU, Department of Interior Architecture and Environmental Design in the 2015-2016 school year, the starting point/source for the (re)construction of the space is a photography frame from the place where the students are most familiar, the building where their studio is located. (Figure 2: Source) The volume reduced to two dimensions with this frame should be redefined with the point, which is the most basic element that makes that volume detectable. As of this first stage, the student will also provide initial descriptions of the relationship between the 'Designed Space' with only an objective reality and the 'Perceived Space' with which he has produced limited experiences in this reality. (Figure 2: Phase 1) Undoubtedly, this action whose awareness will develop over time, the formal intervention on the image, will start to transform and transfigure as it becomes dimensional at first with the lines and then with the surface elements. (Figure 2: Phase 2-3-4) Each stage of transformation focuses on the ***aesthetic function*** of the space which is the resource by removing its pragmatic function.

The search for the third-dimensional equivalent to the alternatives that are also created in two dimensions of the volume which has been reduced to two dimensions before by the student by photographic imaging (Figure 2: Phase 5) is a kind of construction phase, in which new types of relationships are designed. As of this stage, the pragmatic function is now completely excluded. The student starts to be able to monitor the tendency she/he showed (herself/himself) about the form and forming approach, to

assess and manage herself/himself through the alternative producing skill in that progress.

Rebuilding the form is not just a plastic (aesthetic) problem. Transformation of the form, with its potential, will cause the content to transform as well. The change of the perceptible will also start to change the thought; perception patterns will begin to transform and create new meanings within the new string it was defined in. At this point, as of yet, activation of the ***symbolic function*** along with the ***pragmatic function*** is a moment when the physically 'reproduced' space through a photographic image is once again 'redefined' as content. (Figure 2: Phase 6) The process ends with a 'Space of Living' proposition developed by the student.

The experience recorded through this process refers not only to a simple transformation/metamorphosis process designed for the construction of design knowledge/space but also to a concept development process built for the construction of the design thought. In other words, these actions (often unconsciously carried out) set the stage for ***untraceable outcomes*** like establishing the foundations for the construction of thought, and is not limited to (recently acquired) ***traceable outcomes*** like 'the ability to do,' 'language skills,' and 'the ability to deal with a problem.'

The method must be learning-centric, as the design information is a type of information that cannot be transmitted from the outside. However, it can be structured as discovered by the student [10].

3. Objects of Thought: Construction of Text

Undoubtedly, when it comes to design and creativity, both notions of design and creativity are comprised of processes, and cognitive approaches that are developed to explain these processes are diverse. Some approaches are focused on those processes through ***creative personality*** and the unconscious mind of personality (Freud) or the level of intelligence (Guilfold), some are through the ***creative product*** and originality/availability of the product (Stein) or problem compatibility/transformation potentials (Jackson & Messick), some are through the creative process and the differences and similarities of this process observed by individuals, and some are through the ***creative environment***. Regardless of the focus, these four factors (4P's Model of Creativity, Rhodes) are in a holistic relationship that can't be separated from each other.

B. Bloom, an educational psychologist of American origin, summarizes the learning patterns in the taxonomy he developed (1954) with three main areas: thought, attitude, and skill. Accordingly, the ***thought*** (knowledge, comprehending the knowledge, using the knowledge, analysis, synthesis, assessment) is related to the cognitive domain of the mind, the ***attitude*** (perception, answering, evaluation, organizing, identification) is related to affective domain of the mind, and the ***skill*** (imitation, manipulation, debugging,

articulation, adoption) to the psychomotor domain of the mind.

When a literature review is carried out throughout the work on creative processes, although it is observed that the tendency is to position students' design activities under cognitive processes, design training has a balanced relationship with those three areas of Bloom. The student is obliged to develop her/his cognitive competence, readiness level in the studio environment, willingness, ability to characterize the problem encountered, description of the problem with master-apprentice interaction, approach to the problem, and thoughts, attitudes, and skills with the investment required to make herself/himself to obtain all the necessary infrastructure for the solution, as a whole [11].

This holistic structure can also be observed in the *Experimental Learning Theory* (1984) of Kolb, a U.S.-based education theorist. According to him, the thought an action is determined by the perception and experience. In this environment, thought creates an endless cycle of abstract to concrete so that each action can give rise to a new thought or each thought can trigger a new action [12].

In this study, the string built for the CONSTRUCTION of the SPACE which references the ACTION was defined so as to identify the elements that compose the space as the objects of sensation, and to define the relationship between them. At every stage the process has been managed so that the work gains a dimension at every stage (Figure 3); this multidimensionality expected an awareness would arise not only about volume but also about the concept of space. The student was expected to perceive that the conceptual dimension of the space deepened with its aesthetic, pragmatic, and symbolic functions as she/he developed her/his experience in building the material space.

With this method, the student's response to the defined design problem is open to observation and evaluation. However, the attitude developed by the student against this problem cannot be evaluated with the same clarity. Perhaps the most fundamental problem of the first-year design studios is the complication of qualitative assessments of the methods that are applied due to awareness gained not before but after.

Figure 3. The String of the Construction of Space .

The skill which the studio coordinators want to provide students is not only about the building of space, but also about the building of thought, in other words, the aim of learning to learn makes all methods assessments inherently incomplete. Due to the mentioned concern, this study defines a second study for the CONSTRUCTION of TEXT that refers to THOUGHT in the same string with the same supervisor and the

same student, two years after the sample study was carried out.

This study, which questions the objects of thought, considers the source as a 'point' by abstracting it from its depth, just as in the previous study. This point will take a course as the mind defines it, meaning will be given by the expansion of this definition. (Figure 3) However, a meaning fed from a single source will be insufficient in creating value. For this reason, the student is expected to identify at least two points to help the conceptual depth of the thought he developed, no more than three points to deal with this idea, and size those points. The resulting pattern is again a space pattern, but this time space was identified by the construction of a text. (Figure 4)

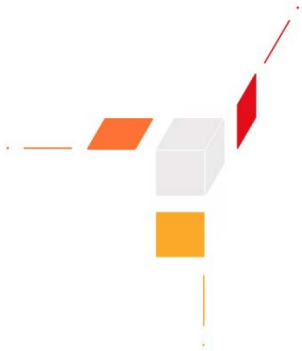


Figure 4 The String of the Construction of Text

The reader can find the constructed text discussed in this section under the heading "*The Flow Process of Perception From Subject, Space and Education*".

3.1 The Flow Process of Perception From Subject, Space and Education

Introduction

Both embodying of its reality and self-positioning of the entity, and gaining a description of the space through the incident is a problem of perception. The development of perception in different shapes in different bodies in line with the environments in which we live and what we are taught is directly related to the fact that the individual forms circles –in which she/he lives– that eventually create a border, no matter how large it is. These circles form perception. We are deciding through what kind of window we look at the world and how we interpret spaces, in a way that we think is free, by going into one of the perspectives that the environment offers and defining our circle. The same perspective applies to education... In areas like design training that create a new way of thinking from scratch, interact with a wide range of disciplines and thereby feed itself, the methods supporting the existence of the circle are a major problem. To create an alternative to this problem, the supporter's, rather than the guide's, ability to fly with those who want to learn should be the main goal to achieve the authenticity that the design should not lose. The Bauhaus school that is often referred to in today's design education is a barrier to students' efforts to break their circles as the definition of instructing is still hosted by it and continues today.

From Subject to Consciousness

Ernst Fischer, in his book The Need for Art, suggests that the moment passed was not real and that situations would only become reality when they were mentioned. When interpreted

from this point of view, the transmission is the prerequisite for reality, and reality is a balloon that is suspended only in space-time space without transmission. The fact that someone died never existed for us until we thought that that person had died. By interpreting this through the entity, Hegel says, 'The entity is not real on its own, but the only thing that is understood is real,' and this sentence [13] suggests that "According to whom and related to what an entity/event/situation is real?" or through the same questions again, 'How much has it been able to make itself real?'

W. Ross Ashby, in writing Design for a Brain, states that he does not use subjective elements, with similar concern to the questions and problems mentioned earlier; because it is impossible for a self-defining subjective reality to be transmitted to the other party based on the description of the individual according to him as well [14].

At this point, according to whom and related to what the situations and entities are perceived, becomes a question mark also for space where they can realize themselves. To what extent can space achieve the goal of defining perceptions and movements laid on it. Or are the initial ideal definitions clear and universal (!) definitions?

Within the scope of these questions, we can accept that we have adopted the space as much as we have experienced and subjectified and that we can exist (within). This space we have a relationship with continues to exist in our subjectivity.

Everything we think we perceive as concrete and abstract around us is the reality we adopted through experiences and subjective life experiences. So, is the subjectivity leading us to percept this in our reality, subjective? According to Ulus Baker, what determines the subject and its perspectives is the position she/he obtains from the perspectives within the environment and the period the subject lives in [15]. So, the things that we perceive and interpret with their tangible or abstract nature around us are not as subjective as we think. We become the subject as much as we can position ourselves in the perspectives of the environment and start to perceive the environment from this perspective. We can describe this situation as an infinite interaction with both sides on the circle.

From Space to Event


Space

The space-event relationship can be explained with a similar approach. According to Tschumi, space identifies the event and vice versa, and the events that take place in the current environment (political and social) affect the production of architecture and images [16]. Tschumi's focus on concepts such as the program, event, performance, and urban space he defined himself is based on the methods of thinking proposed by the era. Playing the subject role by finding a place himself in one or maybe a few perspectives offered to him by the past, future, and today in which he maintains his active existence within the period he lives, and the ideas he has generated in that process, creates new spatial concepts.

Another issue Tschumi puts on is overflowing the circle! According to him, the idea of order should be a concept

that needs to be constantly questioned. By saying that architecture can only exist to the extent it rejects the form society expects from it [17], he defines flowing out of what is imposed and becoming free, and the situation of the aforementioned people and the environment being in a continuous movement that affects each other, brings that freedom and overflowing situation under question. In other words, the situation of overflowing the form is as permissible as the environment it is in, and no matter how large the prison, it is a prison at the end of the day.

Subject and Space Relation

The subject evaluated through Ulus Baker and Bernard Tschumi in the flow of text up to this point has to place itself within the views that are created by the circle constructed around it, that defines a border to some extent, like an environment it is present at and the culture where it is born. Based on this, it can be claimed that the event defines the space and space defines the incident. Because the events introduce different identities into spaces that can be defined as new subjects. Any change the subject/space experienced may have a meaning for the first time or a new meaning again in one of the ways of thinking the period and conditions present it; and continues to exist until a new pattern (circle) is formed. The blindness that is meant to be expressed by this pattern, circle, and boundary analogy is that it pushes a person to become a subject as much as the environment allows. In other words, ideas and judgments are not values composed with free will, but thoughts that evolve to the extent permitted within a given pattern.

Aristoteles can be characterized as an someone that goes beyond the times with his thoughts, and being shown as a reference still today is a situation supporting that. However, when Aristoteles' history is examined, it was not the product of his birth as a person with a sense of power, intelligence, or foresight that makes him ahead of his time, it was the opportunities offered to him. At this point, Marx's saying, 'It is thought differently than a palace in a cottage' has come to mind. Affirmatively, Aristoteles was born into an elite environment and raised in that environment. His father is the private doctor of the King of Macedonia (grandfather of Alexander the Great). When he grew up, he went to Plato's Academy, which was the best school in his time, where he studied for 20 years.

By his thoughts on this world, he was one of the first names to question the moral dimension of slavery. In a way that is never acceptable due to today's perception, under the name of science, he has divided people into two categories by constructing a cover to the enslavement system from the past: Those who are born slaves and who are not born slaves. According to him, those who are born slaves are those who cannot think adequately and have physical deformations that cannot be happy if they cannot find an owner. Based on this idea, he argues that working 18 hours a day is something that would make them happy.

From the same point forth, believing in the superiority of men, he defines women

as a second-class citizen who does not understand money affairs, cannot think, or take care of herself, and he attributes the fall of Sparta to the fact that Spartan men are ruled by women [18].

The culture of slavery in which he was born and the idea that non-slave women should also be close to slaves is the desire to live the pros of Aristoteles, who were born in an elite neighborhood as a man. In other words, he becomes the subject of the environment by settling in one of the patterns provided by the environmental conditions he is present in.

From Education to Bauhaus

Today's design training, although it appears to be independent of the content mentioned above, is essentially located on the same problem.

In general, the educational process has a role for each student strong enough to be based philosophy of life. In particular, design training is an equivalent process to learning to read and write at some point. In this period, while it is learned how to think, express thoughts, evaluate environmental-human relations, and the methods to create alternatives for these values, on the other hand, the student is expected to delete the learning patterns for the pre-license period and open a new clean book, however, her/his perspective on learning is defined through the instructor.

At this point, students are expected to set their mind free and to come up with different ideas by moving out of the box, it is expected that the free mind will be positioned in a new circle directed by the academician. For the student who is not familiar with the culture of the environment she/he is in, the new circle presented to her/him undertakes the role of some kind of shelter. The vessel berths at the safe harbor for a period changing from person to person. Each passing period and each year with new circles offering perspectives changing with changing academicians, cause the student to ask the question of 'Which border should I be within this time?!'

In fact, at some point here, the guiding person who approaches the student to the circle may represent an academician who has never believed in or stopped believing in the idea of a pathless and open-minded free environment of thinking mentioned above... living the anxiety of a parent instinctively pushes her offspring that walked away, back into the herd!

When an individual defines her/his sense of success and satisfaction, especially like design, through her/his authenticity, limits her/his mind to the radius of a circle called Ecole, and restricts her/his self-criticism with the area defined for her/him; she/he shall be able to perceive and evaluate her/his surroundings to the extent permitted by this pattern.

In the design field, discussions continue on the search for ideal training models and the nature of the training provided; with time changing, with new technologies and new ideologies emerge, new training methods emerge. One of these is the Bauhaus Ecole, which is known in our country and can be tracked in institutions that provide design training and aim to integrate arts and crafts as a kind of improvement strategy

after the collapse of World War I. In this integration, the method was to bring the work created by the artist to the public, either by making concessions or without waiting for the public to reach their level [19].

The modernization movements of the Ecole were essentially a standardization act. Given its time and circumstances, its quest for answers to the problem and its acceptance of its students as part of the solution was important and very valuable. Van Der Rohe expressed the importance of that value with the following words: 'The fact of being an idea lies based on its strong impact on all of the progressive schools in the world. Such an impact can be achieved with no organization or propaganda. Only an idea has the power to make an impact so that it can arouse wide echoes.' [20].

This school is a big part of today's education, from our queries under the Basic Design class to the rationale and the solution of the ideas that form the basis of studio lessons. But it's like asking for different solutions to questions and problems and trying to get to the same red house in different ways. Even though different ways take people through different ways of thinking and experience, the effort to always get to the same point does not define a free space, even though circumstances and situations are allowed to be approached from different perspectives.

When you search the meaning of the word Ecole used frequently next to Bauhaus, the definition you will find is a method or stream/school definition that has different qualifications and characteristics in an art branch. In other words, there is a user's manual that does not include the 'never do' part. The designs of almost all designers identified through this Ecole have timelessness and universality. So, when Bauhaus challenges the time and idealizes yellow, red, and blue, isn't it clearly defining a circle? Doesn't it standardize its thoughts and turn the artist into a craftsman rather than a designer? When it is reviewed through the conditions of the period in which it was created, isn't it wrong to say that this idea, which seems perfect and works smoothly, can continue in all of today by serving its aim?

Today, as the Bauhaus idea finds a 'comfortable' place for itself because of its important role in education in history: it defines a new circle that needs to be entered in the hope of liberating minds. When the learners who come out of these and that kind of circles will be the ones who teach tomorrow, the design methods and strategies they develop will compose from the boundaries of that circle. Because as an instructor and as a learner for at least four years in the past, he may not even know about the existence of the circle during the period of his activity, with the self-confidence that is anchored by his experience. She/he will have taken her/his reality from a point of view in parallel with the training he received; because it's going to be presented to her/him from the very beginning, 'What is design?'

Conclusion

Perception

In an interaction that we can define the subject through the conscious and space through the event, the key point is the perception describing the conscious and

event through the subject and space. With the approach developed through this text, perception is defined by the width and area of the circle created by the environment lived within. Educational institutions, as the most significant factor defining the environment, should have a structure that gives an individual a new perspective and that essentially refuses to be trapped between boundaries with the role of new thinking and creation relations. Otherwise, it will define a situation that requires much more precision and rigor, such as being inside the circle metaphor, staying out, standing on its side, and flying on it. The worst thing, no doubt, is that even the existence of the circle is unnoticeable.

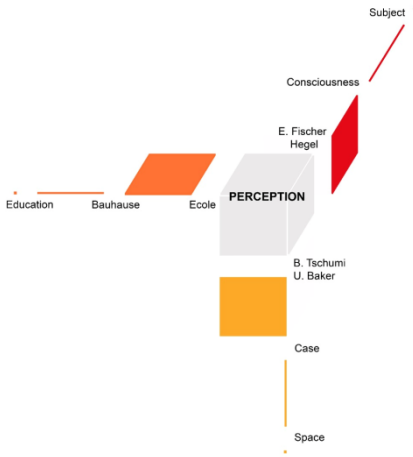


Figure 5 The String of the Construction of Section 3.1.

4. Conclusion

As part of this study, the basic dynamic of the relationship between perception and thought was defined as experience. Both studies sampled as both for the construction of space as the object of sensation and the construction of text as the object of thought were based on the ability of the student to structure his or her thought-line by deductive method. In this context, the work aimed to ensure the traceability of the relationship between the non-existent and not the invention of the non-existent.

The deeper and more comprehensive implications of text (words) than the space[3] will lead to longer periods and wider experiences for the construction of the text.

'*The senses first let in the partial ideas, start to tile in the room that is still empty, and as the mind gradually recognizes some of them, it places them in memory and names them. Then the mind goes further and abstracts them and learns to use step-by-step general names*.'[3]

The transformation of the collaboration at the First Grade Design Studio and design information produced as a result of this collaboration into the production of design thinking with another collaboration at the end of the two years passed, serves as a good example of Locke's thought above quoted from his work entitled *An Essay Concerning Human Understanding* (p. 78).

As mentioned earlier in the study, the ability of the student to create her/his definitions can only be transformed into an awareness/cognition as a result of associating the concepts she/he is exposed to with her/his experiences. It is undoubtedly the best gift for a studio coordinator to lay the groundwork for this awareness and observe development.

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