

Learning to Design. A road-map of Specialized Design Project

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(Received 26 July 2018; Accepted 4 June 2019)

Abstract

How does an architect or a designer think? How can we teach someone to think like one? These are some questions we often turn to during the teaching process, questions to which architects, designers or teachers have proposed many answers and ideas. In the academic environment students learn to create: they learn to create houses, other architectural programs, exterior spaces, interior spaces, objects; in fact, they learn to create. Regardless the project's purpose, the process by which they come to create is the most important skill acquired in school. In terms of contemporary pedagogy, in the field of product design, we try to invest the student with skills that will allow him to approach projects of any kind; skills that will become reflexes. The analysis of a project theme-experiment and its development over two years gives us an insight into the ways of teaching / learning product design. A project theme composed as a teacher-student dialogue, a free project theme -with multiple scenarios of each student- allows us to see a wider perspective on how the future designer learns to create. Looking at design as a process, and less as a result, we ask ourselves how the student learns to design and what are the best ways to stimulate him.

Rezumat

Cum gândește un architect? Un designer? Cum putem învăța pe cineva să gândească în acest fel? Sunt întrebări asupra cărora ne aplecam adeseori în procesul pedagogic, întrebări la care arhitecți, designeri, pedadogi au propus numeroase răspunsuri și idei. În învățământul de specialitate studenții învață să creeze: case sau alte programe de arhitectură, spații exterioare, interioare, obiecte; în fapt își însușesc un mod de gândire specific. Indiferent de finalitatea proiectului, procesul prin care ei ajung să imagineze acel "ceva" este competența cea mai importantă dobândită prin școală. Din perspectiva pedagogiei contemporane, și mai precis a celei din domeniul designului de produs, miza procesului didactic constă în investirea studentului cu competențe prin care el ajunge să cunoască modalități diverse de abordare ale proiectelor de orice tip și transformarea treptată a acestor competențe în reflexe. În articolul de față, analiza unei teme de proiect - experiment și desfășurarea ei pe parcursul a doi ani ne oferă perspective asupra modalităților de predare – învățare în domeniul designului. Definirea temei ca rezultat al dialogului profesor – student, o temă liberă – cu multiple posibilități de modelare (în care studentul își creează propriul scenariu) – oferă un punct de vedere mai larg asupra modului în care viitorul designer își dezvoltă abilitățile creative. Considerând designul - un proces de învățare continuu, ne propunem să urmarim care sunt cele mai bune metode didactice de stimulare a gândirii specifice prin care studentul exersează procesul imaginativ in cadrul designului de produs.

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Keywords: design education, project-based learning, product design, furniture design

1. Introduction

In today's society, designers, other professionals and many different people make design: they collaborate and *build* different projects - social projects, sustainable projects or innovations that help communities or make efficient changes [1,13-18]. The MIT Book Series *Design Thinking, Design Theory* (of which E.Manzini's book - *Design, when Everybody Designs. An Introduction to Design for Social Innovation* - is part) started in 2011, emphasizing ideas and converging concepts that design is nowadays a "service that succeeds through rigorous creativity, critical inquiry, and ethics" [2]. Books presented in this MIT Series introduce design as a way that responds to both local problems, in various social contexts or abstract challenges [1, 9]. Professional designers, are nowadays involving in everyday life's problems with their specific knowledge, their skills and creativity, their way of thinking. This way of reading design and the role of designers is becoming more and more present. Their way of thinking and creativity responds to many of today's preoccupations – complex and multidisciplinary problems.

As designers and architects we often present or discuss our solution, our inner reflective process of design. How did we come up to that idea? What were we thinking? Is it or is it not the best solution? Any professional in this area would recognize that the process of designing comes in many ways that we often cannot explain or don't try to. As teachers we ask ourselves which are the best ways to teach the future designer how to approach design?

The aim of this article is to understand and define some perspectives regarding the way in which product design can be thought in the present context of design – every day's challenge relation. By doing a post-factum analysis of a theme-project experiment in the area of product design at the Faculty of Architecture and Urban Planning (TUC-N), we will try to analyze what teaching strategies are best to be used and in what circumstances do students best respond.

This paper starts from defining a theoretical framework by briefly relating to the main characteristic of project-based teaching strategies, as they are approached in the specific literature, following a second part of the study, regarding the analysis of one furniture design theme and project in the F.A.U.P. curricula, an experimental theme – a theme defined by the guiding teachers and students alike.

How to design – a skill acquisition in contemporary education. Contemporary pedagogical literature emphasizes the transition from acquisition of knowledge to skills acquisition as a key feature of present education. One's ability to perform some activities at specific standards [3, 136] has now become a significant tool in order to observe one's academic development. Skills can thus be defined "by what a person can do in the end, not the specific training along the way". [3, 136] The contemporary educational model [3, 10] is furthermore described as a project-based horizontal organization (as opposed to a hierarchical organization), this type of approach being the most important change in contemporary education. [3, 11] Given this strong orientation and the fact that design education remains a project – based education, we begin by asking ourselves which is the best way to approach a product-design project and which is the stake of such project? One can easily notice that creativity and design abilities shape themselves in time, along with more and more complex projects. But covering design skills requires two types of knowledge: specific information regarding a certain area of interest and procedural knowledge [4, 637]. Procedural knowledge is an interesting concept that arises in the project – based design education: researchers define it as a specific know how, the center of each teaching strategy that tries to develop students' ability to design specific situations [5, 635]. In our case, a post factum analysis of a two years' experience of

a project theme in Specialized Design Studio - Furniture Design (third year of study) tries to find some answers regarding the way in which students develop specific skills and procedural knowledge.

2. Project - based education – educational method and teaching strategy in Design education

Project – based education. This type of education has its roots in the architecture and engineering schools in the 17th century where it was used as a first educational method. [6] A brief description of this type of education-method would emphasize that the project is a learning method and also an experiential teaching strategy. [7, 123] In the general frame of teaching strategies, experienced strategies are student-centered, emphasizing the **learning process**, more than its outcome [7, 138]. Through this type of academic activity the student develops the ability to make decisions; the student practices his capacity to communicate; he develops his creativity and his solving problems skills [7, 141]. In this type of activity the teacher's involvement is less active; it is rather a collaborator. The student explores different options, learning is based on experimentation. [6] Also, from a general perspective "all student centered strategies are means of stimulating critical thinking. [...] For critical thinking improvement, students develop ideas, their own opinions about a problem, they make rational choices" [7, 146] The formation of critical thinking, one of the main objectives of this type of teaching strategy also stimulates students to approach multiple solutions and new ideas. [8]. In terms of project evaluation, pedagogical literature [7, 171] asserts two types of evaluation: the accurate assessments (measurements) or qualitative assessments, the second being far more complex and important to be carried out so as to support and stimulate the teaching and learning activity [7, 175].

Design Expertise. In the field of Design Education, the work of Bryan Lawson and Kees Dorst - *Design Expertise* [9] is a highly appreciated theoretical work regarding the development of design expertise; what it takes to be an expert designer, what skills and knowledge must be developed by the future designer?

Several perspectives towards the process of learning design in an academic conjuncture are defined by the authors; some of these perspectives, as we will further see can be of real interest regarding our project.

(1) Design can be seen as a **mixture of creativity and analysis** [9, 28]. When thinking about a project, authors saw that designers are more concerned with finding solutions by experimenting then by analyzing a specific problem. Too much problem- analysis (the analytical approach) can lead to "unnecessary limitations" [9, 28], while too much solution experimentation (the creative way) can lead to nothing. For each designer these two ways of thinking must co-exist, in order to understand the nature of profession and the world.

(2) Design as **problem solving** [9, 30]. A widely used idea in design education, the authors explain "you pose the problem, search for a good solution by generating (perhaps all) possible next moves, explore the consequences, evaluate them and then choose" [9, 30]. We can thus see this approach as an efficient type to approach a project, however, this way of project construction had been rejected: while Design as problem solving principle is possible in more technical – related design professions, it is not suitable in all, furthermore it "devalued the role of the designer" [5, 636]

(3) Design as **learning** [9, 32]. In search for a project solution, students approach multiple ways to solve a problem, they explore multiple solutions, they criticize them, and they resume some ideas for a period of time. " As a designer, you gradually gather knowledge about the nature of the design problem and the best routes to take towards a design solution. [...] You explore different possibilities and learn your way towards a design solution" [9, 34]. Therefore, design as learning is a way of reading design as a explorative process, a reflective process. But some assert that this approach has also its limitations: it presumes some level of competency, having already knowledge

about the domain; this approach is rather appropriate for proficient designers and not beginners. [5, 636]

(4) Design as **evolution**. [9, 34] This way of reading design process appeals to the occurrence of a significant idea, a moment that strikes, "the creative leap suddenly illuminating the mind of its inventor" [9, 36]. Other theories related to creativity often name this moment as "the Aha moment" [5, 637 Curry] or "the primary generator" [10, 46-47]. This concept of primary generator, in fact somehow different from the significant idea mentioned before, is part of a larger theoretical concept proposed by J. Darke (in 1979) when studying how several architects designed some local authority housing. Her concept generator-conjecture-analysis defines how design appears: "In plain language, first decide what you think might be an important aspect of the problem, develop a crude design on this basis and then examine it to see what else you can discover about the problem." [10, 46] An idea thus appears and all the other processes evolve around it, validating or invalidating it. Some observations [5, 637] mentions that, in practice, this sign of creativity is rather a gradual moment, like a evolution of an idea. So, we can ask ourselves where does this idea come from? Later in this paper, we will try to find some possible answer, following the example of the analyzed project theme and solutions.

(5) Design as **the creation of solution to problems** [9, 40]. This idea starts from the premise that each "problem" ((maybe not properly named problem) is subject to the interpretation of the designer, "this interpretation itself is part of the creative act of designing" [9, 42].

(6) Design as **integrating into a coherent whole** [9, 42] is a way of seeing design as a complete solution that responds to many problems in one response, "all the issues and demands of the stakeholders are addressed in an integrated manner" [9, 42]

(7) Design as **a fundamental human activity** [9, 44] is an idea based on observation regarding the beginning of design studies for students: the first-years students make theirs first designs, they think, observe, they manage to create with the same thinking process as any other students. So "no matter what designers may claim, apparently there is a certain level of design that can be approached by common sense" [9, 44].

With these brief observations regarding some existing theories about the way of understanding design process as a project-based education, furthermore, we want to analyze the development of a Furniture Design Project theme and studio activity, a two years experiment with a particular project theme proposed by the teachers and defined by each student in particular.

3. Specialized Design Project - Furniture design education

In architecture schools, project-based education is the particularity that defines the entire curricula. The Specialized Design Project – Furniture Design Studio, a teaching program at the Faculty of Architecture and Urban Planning in Cluj, is one semester studio in the third year of study which introduces the student in the product design area by approaching notions regarding ergonomics, materials, product design principles, aesthetic judgment. The point in which this studio intertwines in students` education, in their professional development, is after two and a half years of study when a certain technical thinking is already formed and introductive notions regarding Visual Arts and Decorative Arts are also covered. So the main question to approach is how to plan a right design methodology for students at this point - a plan that will help the formation of procedural knowledge in the area of product design.

In our attempt to emphasize the process of designing and not the result, we observe that the concept of *Design as learning* (developed by Bryan Lawson and Kees Dorst) holds up the concept of procedural knowledge formation: in the third year of study students have a certain base of their professional formation and they are able to respond to the requirements a project-theme while playing with the essence of the project.

Furniture Design Studio`s teaching objectives. From a pedagogical perspective, the main objective [11] of the studio is to emphasize students` ability to analyze, conceive and design a product, in accordance with a proposed theme and context. In order to achieve this step, students approach anthropometric relationships, materials, constructive principle and aesthetic criteria that underlie their designed product. More precisely, they must understand the way in which specific use of materials is reflected in the product, what are the best constructive and finishing techniques in relation to that specific product. While consulting additional documentation sources that relate to specific materials and techniques students expand their technical knowledge, refining their own plastic expression.

Our experience along the years with different project themes, made us concern ourselves how a very particular theme (a product design task) can actually determine students` capacity to approach the wide area of product design? Some project-themes with more strict rules (project-themes that proposed the product design using very specific materials- particular materials), other project-themes more freely defined (such as the one discussed in this paper) helped us explore the proper context in order to achieve the teaching objectives previously mentioned.

A brief study of project types and teaching strategies in use in a faculty of design can help us explore the nature of projects in design education, their roles and outcomes. The following study [12] regarding the Faculty of Design at Australian Metropolitan University of Technology, a University present in the Academic Ranking of World Universities 2017 [13] aimed "to explore the nature of the project methods used in design education, to identify differentiating factors in project types, and to produce explanatory models that might provide a starting point in identifying project principles, structures and processes" [12, 542] regarding all of the specific fields of study: Communication Design, Multimedia Design, Interior Design, Industrial Design, Product Design Engineering.

The study identified six types of project models such as: *Directed activity method*, *Project-oriented activity method*, *Directed project method*, *Guided project method*, *Independent project method* and *Independent inquiry method* – lined according to a gradual complexity evolution.

The first two typologies - *Directed activity method* and *Project-oriented activity method* - (with an average time: 10 minutes-2 weeks or 1-4 weeks) – are two short activities characterized by prescribed steps and structures; the student is described as a follower, with no independent decision-making possibilities or an obedient learner; the major goal is the skill development. In the next two typologies - *Directed project method* and *Guided project method* (with an average time from 2 -8 weeks to 3-12 weeks) – the student is a junior professional, an involved learner with a certain independence regarding time-management, materials and processes. The major goals involve the acquisition of knowledge and the "Competent use of knowledge, processes, decision-making and analysis/synthesis of content under supervision" [12, 556]. The final two types of project - the *Independent project method* and the *Independent inquiry method* – are defined by most complex challenges for students within a time frame of 6-12 weeks or longer. The student is more independent, he is seen as a "Professional, autonomous learner, self-reflective and self-directed identifying learning needs and gathering appropriate knowledge, chooses processes" [12, 555]. The major goal is the development of a topic in a pre-scribed area or an area defined by the student, the independent exploration and formation of rational, convincing arguments. [12, 555]. Regarding the teacher, his role is transforming from a controller of activity (in the *Directed activity method*) to a Guide/supervisor of process (*Guided project method*) and finally to a "Supervisor and collaborator in process and field (collaborator)" [10, 555] in the *Independent inquiry method*. The author also admits that in practice, these project-types are used in combination. [12, 551].

As far as that goes for our project – the Furniture Design Project – the teaching method is somehow between the *Guided project method* and the *Independent project method*. Although the project

develops in several phases, under the guidance of a teacher, the project-theme we will further discuss allows a certain degree of independence regarding the project-theme's particularities. While students are still in their beginning of the specific education, with some level of competency, several imposed steps help them learn a specific procedure, developing a rational exploration.

But, apart from the development of students' technical knowledge and plastic expression (some rather punctual skills), the Specialized Project Studio, by emphasizing students independent involvement in creating their project theme tries to develop that procedural knowledge [5, 636], the specific know-how. In this way, they are also stimulated to make more associations between different professional fields.

3.1 Furniture Design for a Commercial Space – a teacher-student project theme

The Project *Furniture Design for a Commercial Space*, the Furniture Design Project we will further discuss, is a product design theme that brings into foreground the multiple perspectives towards commercial spaces adjoining the street in a city's center. Commercial spaces are often changed from functional considerations, or they often change their interior or exterior image in order to adapt the consumers' curiosity. This continuous change is the project's framework that emphasizes the dynamics and the high level of mobility of these spaces. [14] The Project theme thus proposes the re-functionalization of a small or medium sized commercial space by designing a number of pieces of furniture suitable for the chosen function. This space can be an imaginary one, or a real one, chosen by the student – within Cluj-Napoca's historical center.

Several other aspects were at the students' choice:

- They had to imagine this group of furniture objects for a specific function : clothing, leather objects, shoes, cosmetics, perfumes, jewelry, watches, books, sportswear, hats - at their choice;
- They could choose to design the specific furniture for a precise brand or a generic one;
- They could choose to imagine a medium or a high-end standard commercial space;
- Depending on the specifics of the products chosen to be sold, they could imagine furniture objects for display / storage, fitting rooms, furniture objects for waiting or reading, for sale - relationship with store staff, mirrors, other objects / installations with a contemporary image with a role in emphasizing the ambiance and identity.

According to their choice, some specific technical requirements were imposed, in order to emphasize the acquisition of technical competencies.

Since the beginning, we must emphasize the subject's approach being slightly different in the two years. As a result of the first year of the project, the theme and teachers' guidance was more focused on searching for particular items (especially medium and high-end stores). Students' search for existing spaces was much more pronounced in the second year, on the one hand for a better knowledge of the city, but also for a more sensitive approach to the interior space ... how could the commercial space and city be in the perspective of their intervention?

Concerning the project models previously discussed – at the beginning of the Furniture Design Project, students are encouraged to be more independent, they have the opportunity and responsibility to formulate several important aspects of the project theme – in fact they have to define their personal theme. This type of content is probably closer to the *Independent project method* – after the theme's presentation, students are given some materials for guidance, however the first stage is focused around an independent investigation and exploration of other relevant areas. This is the moment when they investigate other examples (*the Documentary phase*), as required by the project theme; however the specific exploration is at their choice, according to all the steps they make in order to formulate their theme. They analyze other commercial spaces (the

relation of the shop with the street, the way in which one can access, the window-shop, the type of goods exhibited for sale, the required and appropriate exposure area, the accessibility, the number of clients who can be simultaneously inside, the necessary commercial staff) and various pieces of furniture (in various materials, with their specific dimensions and details). Many students formulated their theme for a specific brand which they also documented (the brand's identity, evolution, other specific details). In this phase we can observe a horizontal approach when students simultaneously pointed several aspects in order to define their theme.

A particular observation is that a number of students chose to further investigate other areas of their personal interest – for example: the hemp processing, the production of beer, a specific brand's video commercials – a type of approach that led to particular design solutions, especially in the second year, as result of the theme's orientation. This observation can lead us to another concept of Kees Dorst: the author emphasized that professional designers, at the beginning, instead of searching for solutions, they focus on "re-framing" a problem.[15] Complicated problems or projects are best solved when new ways of thinking about the premises emerge. Furthermore, if we think at the *Design as evolution* concept developed by Bryan Lawson and Kees Dorst we previously mentioned, we noticed that in these cases the "Aha moment" came from this documentary phase students looked in other areas significant for their personal interest. This is an interesting thing to observe: this type of free-theme allowed students in fact to shape the project requirements according to their areas of interest. This *Documentary phase* which is developed in three weeks ends with a first idea for the furniture objects.

The time-frame organization is rather closer to the *Guided project method*, specific key-parts of the project being scheduled for specific dates, in order to maintain a constant work-rhythm. In one year the number of weeks dedicated to this project was 7 (during the first year) and 13 weeks during the second year. The projects organization followed the same steps, with a few differences: *the Documentary phase* (2 / 3 weeks), three phases of the projects' development that mark the transition from *a project sketch* – phase 1 (1 / 2 weeks), to *a 1/5 scale detailed project* (2 / 4 weeks) – phase 2 and 3. The projects 'exhibit was scheduled for 1 meeting in the first year and 2 separate meetings (the project and a 1/20 scale model and a separate 1/5 scale model exhibit). With this type of strict organization, of developing the project in specific stages, as a teaching strategy, students` develop the procedural knowledge that allows them to further navigate through "the uncharted, indeterminate and undulating territory that is the design process." [5, 644]

Since the beginning, students are advised to imagine the furniture pieces as objects that can determine or highlight a new image of the products, furniture pieces that can create a valuable identity of the entire commercial space. The teaching method, as in the general project-based learning is student-centered, the teaching processes involve teacher-student discussions and short presentations about specific issues. During the second year (when the project was developed in one whole semester), towards the finality of the project and due to the more extensive schedule, some of the projects were also discussed between students and the entire teaching staff.

So, how do students approach product design during this project evolution? We can notice several factors that influence the project's development: apart from the obvious existing knowledge and plastic expression capacity of each student, the *Documentary phase* that highlights various areas of particular interest can influence the project's solution in a positive way; regarding the working-method, CAD is in most cases preferred and CAD skills often generate solutions while model realization is sometimes perceived as a step that follows the project; model realization being instead a work-method and teaching technique that tries to develop a certain plastic expression of the project and human scale understanding. Towards the outlining the solution, we witnessed some design-solutions with a great individuality according to their particular theme.

The evaluation. In both academic years the project evaluation took into consideration several phases: the documentary phase and project sketch, the final project, the project model and the designing process.

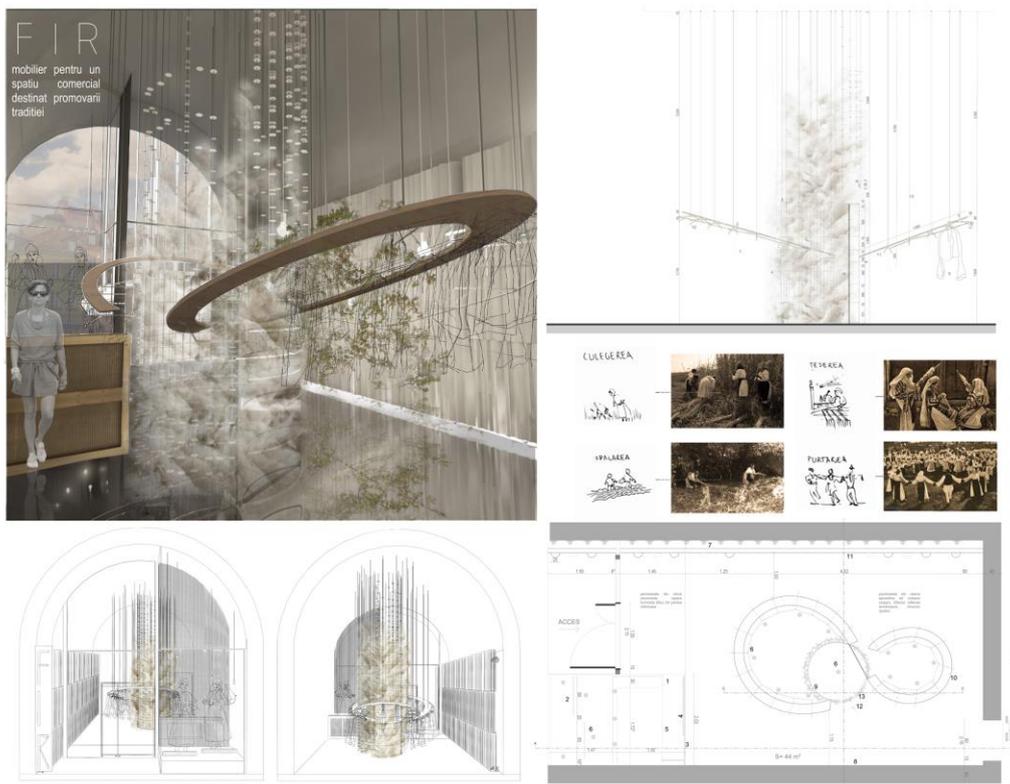
The evaluation criteria were structured in two components:

- Objective criteria: the correct and complete fulfillment of each requirement of the project (drawings, texts and models)
- Value judgment
The value judgment (B.Lawson`s concept [16, 70]) evaluates from a functional, constructive and aesthetic perspective, but it also emphasizes that particularity of projects; what project has the capacity to go beyond these three criteria we all know, how some of the projects succeed in telling *a story*.

Although a subjective appreciation is always tempting, especially in design, the guiding teacher`s opinion targets the evolution of the project (the designing process) – the guiding teacher can evaluate the entire balance of the project between different alternatives, rational decisions and the student`s capacity to further search.

3.2 Furniture Design for a Commercial Space – a project`s outcome

The final outcome of the project is presented from two perspectives: a visual perspective of some interesting solutions from both academic years (Figure 1, Figure 2) and a students` perspective presented by means of anonymous questionnaire at the end of each project.



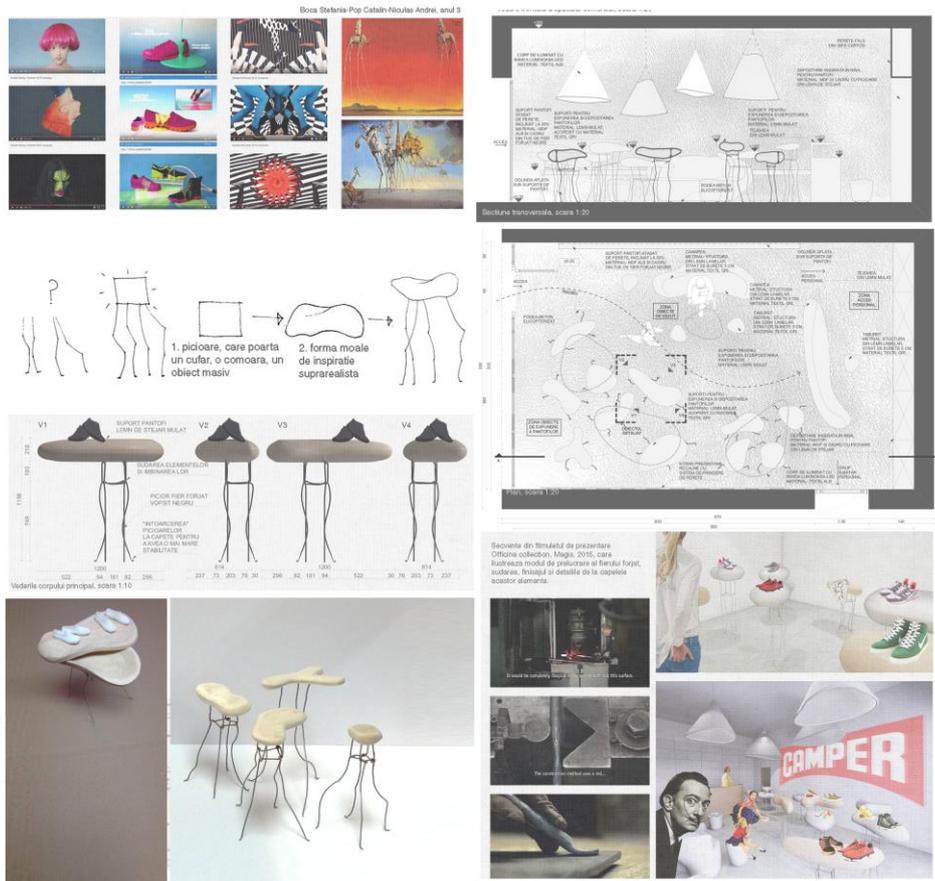
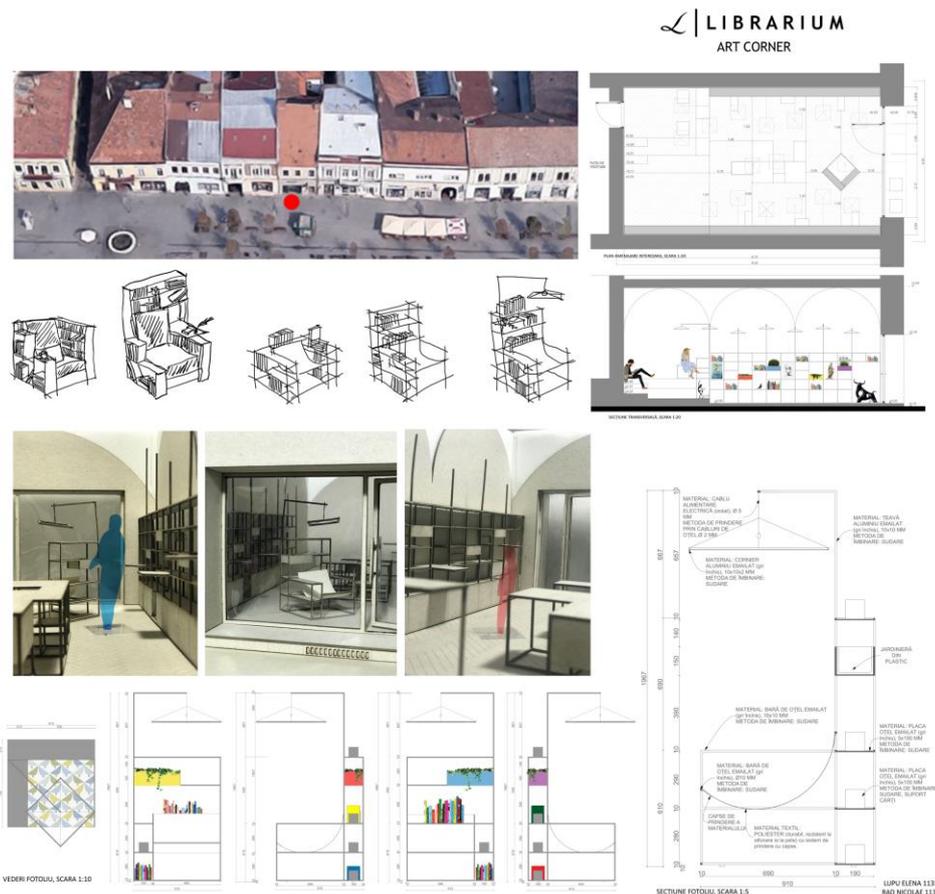


Fig. 1 Furniture Design for a Commercial Space. A visual perspective 2016-2017 [17]



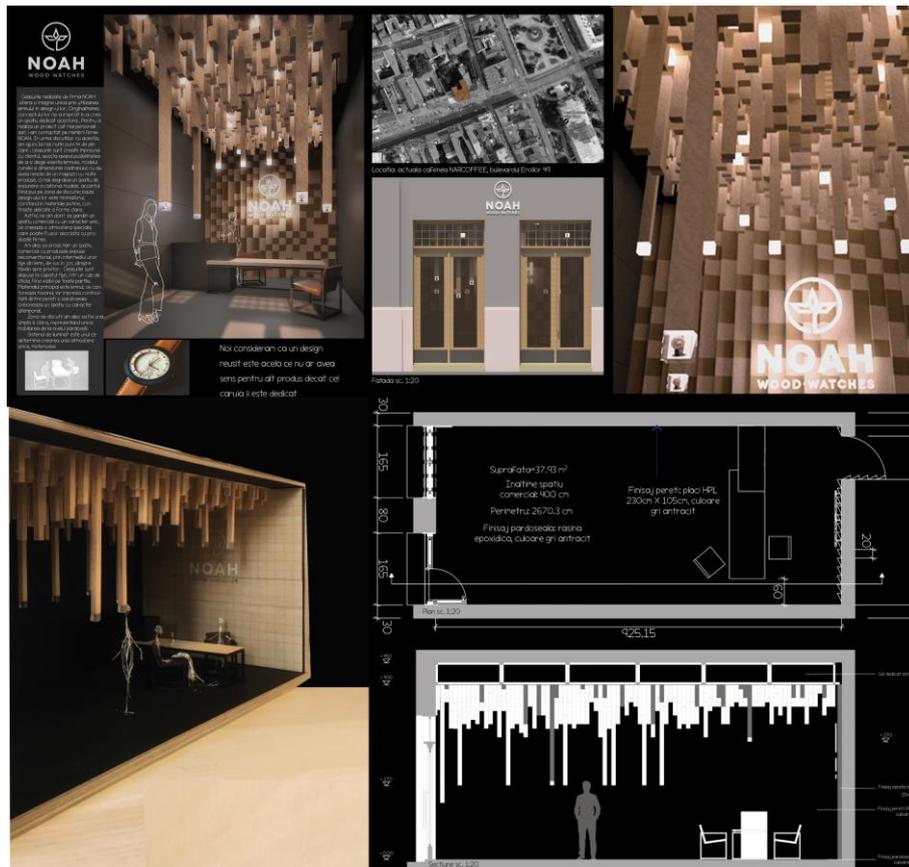


Fig. 2 Furniture Design for a Commercial Space. A visual perspective 2017-2018 [18]

In the first year of study most students chose to design commercial space for rather generic shops, not for specific brands. They chose most of the specific merchandise the theme proposed, medium (in most cases) or a high-end standard commercial space alike, but most of the commercial spaces were imaginary. Following this experience, in the second year, along with the theme's orientation, the number of projects designed for a specific brand was much larger, most of the students picked up high-end brands (for example: Balenciaga, Cartier, Chanel, Jacob & Co, Gucci, Seiko, Skagen) or Romanian Designers` brands (Noah, for example) in real spaces in Cluj-Napoca`s commercial streets, matching the historical frame. In the second year, students had an optional requirement to design the window shop; most of the projects also chose to design it. We noticed that in those cases when the documentary phase included many examples of window shop design, students' options tended to be more specific – real brands, with a quality standard above medium.

An anonymous questionnaire that briefly describe the students` perspective regarding the theme was given at the end of each academic year. In the first year 54 students (among the 112 students in the third year) answered the questions regarding the project theme, the time framing, working methods and usefulness of the exercise.

Question: How did the theme look like in the general context of object design?

96% of the answers were positive answers, some answers are given below. 4% of the students thought to be a too technical project theme that had too many requirements.

"It was one of the most beautiful projects this year and the most captivating, where I was able to innovate whatever I wanted."

"The theme was accessible, interesting and relaxing. "

"It was interesting; I think it made us realize that architecture is not just houses. It seems really

great the furniture / object design area because you can always reinvent the conventional. "
"It seemed to me a very interesting theme that helped us to open up and be more creative. "

Question: How did you feel about the project assignment? Did you fall within the allocated timeframe?

17% of the students thought the timeframe was too short, 72% of the students were satisfied with the timeframe allocated, 4% of the students thought the timeframe was too long and 7% did not answer the question.

Question: What working methods did you most use in the project?

As expected, most students used the on-line resources. Around 60% of the students used the model as a working-method.

Question: How do you think you can use the skills practiced during this project in the future?

Although the project theme was meant to be a product-design exercise and some students also included in their documentary phase objects designed by Romanian architects-product designers, many students replied that the project will be useful for a better understanding the interior spaces in their architecture projects and they appreciated the theme as being very close to reality. Other students answered:

"We could probably start building our own line of furniture "

"I would have liked this exercise to have gone further in the sense of calculating how many objects fit on the shelves, the cost of a rent, the approximate price of a product. "

In the following year, (when the project was developed in 13 weeks) the questions targeted the difficulty degree of the project, the theme, students` aptitude for the technical part and the interaction student – teacher. Among 90 students in the third year, 41 students answered the questions.

Question: What was the project`s degree of difficulty compared to the knowledge gained up to the third year of study?

Three students found the project to be too hard, two students appreciated it to be an easy project, and the others found it to have a medium degree of difficulty. Some students noted that the amount of work to be done was too much (for the number of ECTS credits).

Question: Which elements of the project-theme did you find interesting?

5% of the students thought the interior space or the window shop design to be more interesting than the product itself while 25 % of the students enjoyed working on the furniture piece (product design) and its details, but some noted that the amount of time for the details was not enough. 13 % of the students emphasized that working on models was very interesting and the others (57%) appreciated the freedom of choice regarding the project-theme and the possibility to document other areas of interest.

Question: Do you think the solution in the project could be built using the technical details presented in your project?

15% of the students answered that the projects` details could be improved while the others answered that the object they imagined could be built the way they imagined.

Question: What was the best way to interact with the teacher? Do you think you have managed to properly deliver your idea to the teacher (or the beneficiary)?

Only 2% of the students think their project or idea was misunderstood, 5% of the students don`t know and the others has positive answers – their idea being best understood by means of sketches or models.

In the end of the project, while reading students` feedback, we can observe much contentment but, most important of all, some of them understood Furniture Design and Product Design as a process of interaction among different areas, while exploring through design.



Fig. 3 Furniture Design for a Commercial Space. A visual perspective 2016-2018

4. Conclusions

Teaching Design remains the subject of an entire debate. Our experiment started, with an intuitive impulse, from the idea of construction a project-theme that will impel students to *search* outside their usual books or websites. We started from the premises that this type of project-theme will make them a little bit more aware of the contemporary challenges of design, as a result, we noticed, in several cases, that students developed a certain procedural knowledge [4, 637]. While Furniture Design Discipline`s teaching objectives imply the formation of technical and plastic skills, as part of the larger domain of Product Design, students managed to form conceptual association with other areas of design or other economic activities. Product design can be read through its multiple ambiguous boundaries: during one`s formation as architect, the punctual insertions in such a complex and interconnected domain - the development of the specific know-how - is the basis of his thinking as a designer.

5. References

- [1] Manzini E. *Designul, cand toti suntem designeri. O introducere in Designul pentru inovatie sociala [Design, when Everybody Designs. An Introduction to Design for Social Innovation]*. Ed. Vellant, Bucuresti, 2017.
- [2] Design Thinking. Design Theory MIT Series. [<https://mitpress.mit.edu/books/series/design-thinking-design-theory>] accessed August 2018.
- [3] Chiş V. *Pedagogia contemporană. Pedagogia pentru competențe. / Contemporary pedagogy. Pedagogy for skills development*. Cluj-Napoca: Casa Cărții de Știință, 2005.
- [4] Curry T., SJ. A theoretical basis for recommending the use of design methodologies as teaching strategies in the design studio. *Design Studies*, **Vol. 35**, No 6, pp. 632-646, 2014. <http://dx.doi.org/10.1016/j.destud.2014.04.003> apud McCormick R. Conceptual and procedural knowledge. *International Journal of Technology and Design Education*, **Vol. 7**, pp. 141-159, 1997.
- [5] Curry T., SJ. A theoretical basis for recommending the use of design methodologies as teaching strategies in the design studio. *Design Studies*, **Vol. 35**, No 6, pp. 632-646, 2014. <http://dx.doi.org/10.1016/j.destud.2014.04.003>. [https://www.researchgate.net/publication/262691246_A_Theoretical_Basis_for_Recommending_the_Use_of_Design_Methodologies_as_Teaching_Strategies_in_the_Design_Studio] accessed August 2018.
- [6] Knoll M. The Project Method: Its Vocational Education Origin and International Development. *Journal of Industrial Teacher Education*. **Vol. 34**, No 3, pp. 59-80, 1997. [<https://scholar.lib.vt.edu/ejournals/JITE/v34n3/Knoll.html>] accessed August 2018.
- [7] Radu IT, Ezechil L. *Didactica. Teoria instruirii / The theory of teaching*. Pitesti: Ed. Paralela 45, 2006.
- [8] Utaberta N et al. Upgrading Education Architecture by Redefining Critique Session in Design Studio. *Procedia - Social and Behavioral Sciences*. **Vol. 102**, pp. 42 – 47. <https://doi.org/10.1016/j.sbspro.2013.10.711> apud Meyer EK. Landscape Architectural Design as a Critical Practice. *Landscape Journal*. **Vol. 10**, 1991.
- [9] Lawson B, Dorst K. *Design Expertise*. Oxford: Architectural Press. Elsevier, 2009.
- [10] Lawson B. *How Designers think. The design process demystified*. Fourth edition. Oxford: Architectural Press. Elsevier. 2005 apud Darke J. The primary generator and the design process. *Design Studies* 1(1): pp. 36-44, 1979. DOI: 10.1016/0142-694X(79)90027-9
- [11] Specialized Design Project. Furniture Design Discipline Presentation [<https://fau.utcluj.ro/files/planuri/fise/46.pdf>] accessed August 2018.
- [12] Lee N. Project methods as the vehicle for learning in undergraduate design education: a typology. *Design Studies*. **Vol. 30**, pp. 541-563, 2009. doi:10.1016/j.destud.2009.03.002 [<https://pdfs.semanticscholar.org/9006/bf2e8921cf7f3ba6c7d5f875900653bcbd9d.pdf>] accessed August 2018.
- [13] Academic Ranking of World Universities [<http://www.shanghairanking.com/World-University-Rankings-2017/Australia.html>] accessed August 2018.
- [14] Furniture Design for a Commercial Space. Project Theme. Authors: Assoc.Prof.PhD Arch. Dorina Vlad, T.Assist.PhD Arch. Andreea Motu, PhDs Arch. Fabian Luca
- [15] Van Leeuwen J. et al. *Thematic Research in the Frame Creation Process*. Service Design Geographies. Proceedings of the ServDes.2016 Conference. Issue 125. Linköping University Electronic Press, Linköpings universitet. pp. 352-364. 2016 apud Dorst K. *Frame Innovation: Create New Thinking by Design*. MIT Press. 2015. [<http://www.ep.liu.se/ecp/125/ecp16125.pdf>] accessed August 2018.
- [16] Lawson B. *How Designers think. The design process demystified*. Fourth edition. Oxford:

Architectural Press. Elsevier. 2005

- [17] Furniture Design for a Commercial Space. A visual perspective 2016-2017: Project authors: Cânta Diana, Oltean Ioana, Udrea Madalina; Boca Stefania, Niculas Andrei, Pop Catalin
- [18] Furniture Design for a Commercial Space. A visual perspective 2017-2018: Project authors: Rad Nicolae, Lupu Elena; Sabau Maria, Oniga Razvan