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Research Article

A Pedagogic Approach Serving Inclusive Design

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Abstract

This paper presents an architecture teaching approach intended to final year architecture students, which is based on a human-centered design perspective, while respecting environment in all its compounds. The present work claims, as a hypothesis, that to design inclusive projects, it is worthy to develop in future architects' capacity to analyze and reconcile both environment requirements and users' needs as well. The large array of environment key elements and the complexity of users' global apprehension, make it crucial for the future architects and urban planners to control the appropriate set of analysis methodologies and put to contribution the most efficient design tools. The pedagogical approach we deal with in this article, educates students in empathy, listening, and developing an open-mindedness that according to this study, allows them design better inclusive spaces. I am adopting such a vision for several years now, and I am experimenting pedagogical strategies and tools accordingly, either within the final year Architectural Design Studio I share with other colleagues, or during the Seminar I offer to the same audience. In trying to subscribe to a perspective of action research and reflexivity, I chose to present in this paper the analysis of four architectural dissertations addressing inclusive design concerns. This analysis aims to fathom how experienced analysis tools, such as SWOT grid, urban transect and qualitative social survey, as well as design tools, such as sequential approach of space, functional analysis and value creation tools, may help final year architecture students better analyze and design inclusive projects.

Keywords

Inclusive Design, Analysis Tools, SWOT, Urban Transect, Qualitative Social Survey, Design Tools, Human Centered Design

1. Introduction

Our students in fifth, and final year Architecture, just as in similar educational systems, are required to complete a final year project, which generally consists of designing a novel architectural and/or urban planning solution in response to a particular spatial issue. The body of the dissertation builds up on appropriately deep and thorough analysis of the concern to be addressed, that the student has to carry out and extract directly exploitable requirements and/or guidelines in the project design, which is the next stage and culmination of the process. At this stage, the future architect clearly identifies the parameters and tools intended to help him/her figure out the best solution to the problem previously investigated. Actually, our final year architecture students start thinking and establishing their dissertation topic early in the academic first semester of the year, that is from September to December, within the one Architectural Design Studio (ADS) they will have chosen, from the different themed studios available, that would converge the most with their respective interests.

Among the 5 themed Architectural Design Studios, the one in which I teach for five years now, together with other col-

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leagues, focuses on Territories, Communities and Places as the main object of study. My personal pedagogical offer to final year Architecture students includes a Seminar on strategic analysis techniques and development of creative imagination, I provide in plenary session, this in addition to an almost personalized support for students within the Studio. By means of these two complementary activities, I find myself more able to better train my students in strategic analysis techniques and develop their creativity [1, 2, 4, 15, 19].

This work presents a pedagogical approach consisting of transferring a number of techniques and tools to final year architecture students intended to help them achieve the analysis and design of their final year architecture projects. This approach is presented through 4 final year projects conducted within our studio and having the specific common theme of inclusiveness [23, 24]. In this context, the objective of the pedagogical approach is to help future architects think strategy and analyze systematically to better design inclusive spaces that take into account the diversity, needs and expectations of both intended users and the environment in which they live [7].

This study claims that, if the future architects consider these parameters, they will be able to design inclusive spaces with high benefit for their environment. Hence as a specific outcome, we expected future architects to become attentive to and aware of the difficulties, constraints, potentialities, needs and resources of the spatial environment and those who live in [23].

The current research is conducted in four steps presented in corresponding four parts. The first step following introduction describes the study materials, which consist of two elements: first, the pedagogical and didactic tools, and second, the students' dissertations. We will then show clearly which pedagogical and didactic tools each one of the students' dissertations used.

The second step analyses the students' architecture dissertations with regard to the tools used and the results obtained. The objective is to assess the effectiveness of the pedagogical and didactic tools of our approach and estimate to what extent the claim of this work is valid. This second step is the heart of our study and the most voluminous one. The analysis focuses, essentially, on the way students make use of those tools and take advantage of the recommendations of our pedagogical approach. The analysis is interested also in the results of the students' works and how well do they fit with our pedagogical expectations [19, 25].

The third step of this article is a discussion of the results of the study and an evaluation of their relevance. While the fourth and final step of the work is a conclusion, which, in addition to summarizing the research process and its results, try to open up new directions for further researches in architectural education.

2. Study's Materials

As mentioned above, the materials of this study include two sets. The first one consists of four architectural dissertations and the second one comprises the analysis and design tools those dissertations have used and benefited from.

The first item from the first set, which code name is "M1[1]", deals with the social concern of "street children". The future architect addresses their actual situation, in view of the social exclusion they experience and considering the institutions that support them. Her proposal is a shelter that she chooses to implant in an existing therapeutic and educational farm for disabled children. In making such a choice, the student forces herself address an additional concern: this of including "street children" within a specific space where they will be called to live together with other children having different concerns. She targeted to offer them the opportunity to become active and responsible people in society, and so made social cohesion as a key concept of her project.

The second architecture dissertation, which code is "M2[2]", focuses on integrating an urban wasteland into neighborhood's life. It is an unfinished urban operation, which is over 30 years old, located in a big city. It generates an extended urban void affecting daily living of neighborhood's users. Inhabitants of the area are forced to cross that void daily with such an uncomfortable feeling; in addition to a high level of insecurity that they incur. The solution devised by the student is a project of a living area, where functional and social mix are the key words, and where "living together" and "human scale", as Jan Ghel defined it [9], are the key concepts.

The third dissertation, coded "M3[3]", deals with elderly people and their urban exclusion. The context study focuses on a small town which has the only care center for the elderly in the "Cap Bon" region where the town is located. The student identifies difficulties and constraints related to the movement of elderly in the city and proposes urban solutions for the most problematic places. At the architectural scale, she designs a residential building where elderly, living with their families or alone, can easily participate in the life of the neighborhood.

The fourth and final architecture dissertation, codenamed "M4[4]", deals with the urban squat of a non-functional railway line. This squat, which exist for nearly fifty years, generates a specific micro-system of functions and users that continually struggle to subsist. The student considers the diversity of users,

[1] M1: National School of Architecture and Urban planning, University of Carthage, Tunis, Tunisia, Architectural memoir, De l'exclusion à l'inclusion, by Ishraq Rouatbi, Supevised by Samia Gallouzi, Co-supevised by Mona Fakhfakh, July 2021.

[2] M2: National School of Architecture and Urban planning, University of Carthage, Tunis, Tunisia, Le délaissé urbain de Sfax El Jadida - D'un lieu de passage à un lieu de vie, by Oumeyma Chemek, supervised by Samia Gallouzi, Co-supervised by Mona Fakhfakh, March 2021.

[3] M3: National School of Architecture and Urban planning, University of Carthage, Tunis, Tunisia, Promouvoir une vieillesse active au sein d'une ville inclusive - Cas d'étude: La ville de Grombalia, by Imtinen Dhaouadi, Supervised by Samia Gallouzi, Co-supervised by Mona Fakhfakh, July 2022.

[4] M4: National School of Architecture and Urban planning, University of Carthage, Tunis, Tunisia, La ligne ferroviaire de Gasserine, Une ligne à un vécu pluriel, By Wajih Bouras, Supervised by Samia Gallouzi, Co-supervised by Mona Fakhfakh, July 2022.

functions and land resources as an asset for this neighborhood. He designs a 1.8 km urban project along the inactive railway line. He proposes spaces to recycle waste from the fruits' and vegetables' market, to valorize waste from the thrift store as those recuperated from the mechanics and sheet metal workers of this neighborhood. The student designs, in fact, a new living environment for this neighborhood of railroad line. He creates places of work, relaxing, playing and arts creations. In his project inhabitants, visitors and merchants cohabit and the daily life of that neighborhood, in that way, is improving.

The second set of materials of this study includes, on one hand, SWOT grid [14, 16], Urban Transect with sequential analysis and [10, 17], Qualitative Social Survey [3, 11], as analysis tools and, on the other hand, User Experience [12, 18], Functional Analysis [20] SWOT [14, 16] and Value Creation as design tools [5, 6, 8, 13].

The table below indicates the analysis, apprehension and design tools used by each architecture dissertation identified by code name as in text above.

Table 1. *Students works related to analysis and design tools in use.*

Architecture memoirs	Analysis and apprehension tools	Design tools
M1	Qualitative social survey through Interviews. Urban transect	Functional analysis Value creation tools Spatial sequential approach
M2	Urban transect Qualitative social survey through Interviews	SWOT grid Users experience Functional analysis
M3	Qualitative social survey through Interviews. Urban transect	Users experience Functional analysis Value creation tools
M4	Urban transect Sequential analysis	User experience Value creation tools Functional analysis Spatial sequential approach

3. Analysis of Architecture Memoirs According to Tools Challenged and Results Reached

By hypothesis, we admit that designing inclusive spaces involves taking into account the diversity of users' profiles, the multiplicity of their needs and the assortment of resources they require [23, 24]. At the same time, we have to consider the implications in the inclusive spaces' design, of the environment, which will host these spaces and where these people will evolve [7, 23, 24]. Our pedagogical approach targets making architecture students attentive to and aware of the difficulties, constraints, potentialities, needs and resources related to spaces to design, to their environment and to the people who will live in there. In this very perspective, we consider inclusive architectural and/or urban design as Human-Centered fact [12, 18], since it gives priority to users' quality of life, which depends closely on the design of the spatial framework where they live [3, 4]. Considering users as the key parameter of architectural and/or urban design by giving them prior importance on others compounds of the design context such as site characteristics and resources, is essential to ensure an inclusive design, with regard to this study. This consideration is likely to make architects and urban planners more aware of the complexity of the design process [25], they are leading, and allow them control it more efficiently. In my capacity as director of the final dissertations, under analysis, I have the task of guiding the students in the right directions and facilitating each stage of their work. I provide them with appropriate tools for analysis and design that suit the best their own positioning regarding the issues they are dealing with. That argues the adoption of research in action method for conducting this study as well as basing of D. Shon's reflexivity [19] to challenge pedagogical approach presented in this paper.

To analyze students' works on regard of tools that it put in use and results it reach, we operate in two orders. First one is focusing on analysis as led by students in their memoirs while second one makes in lights design process of them. That does not consist on separating the two steps which are, in fact,

closely correlated in students' memoirs but it is a way to make assessment of efficiency of approach we are defending easier and transferable. Indeed, the third stage of current subtitle is about that. It is where we discuss and evaluate study's results and their relevance's degree.

3.1. Analysis of First Memoir (M1)

M1 dissertation's issue is street children's social exclusion, and how to ensure their rehabilitation. To apprehend the phenomenon, the student carried out an in-situ investigation and tried to uncover how street children appropriate the spaces they occupy. She found out the way these children delimit the territory they invest, what they use for that and which behavior they adopt towards spaces to make them own. Then, she identified the appropriate care institutions and the range of services they offer for those children both at local and international level. She analyzed a number of projects especially in contexts presenting similar characteristics to those of our country.

To analyze the quality of street children' care at domestic level, she relied on interviews with managers and working staff in institutions that she could access. She also conducted a qualitative social survey among children hosted in those institutions. The student's analysis included a spatial part, which related to organizational, functional and quality of spaces these institutions offer to street children. For that, the student called out mainly to the Urban Transect supported by a Functional Analysis of spaces she visited.

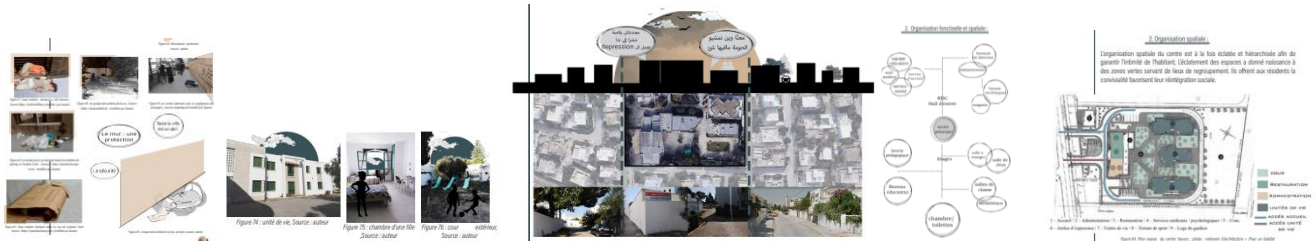

Figure 1. *M1analysis process, Ishraq Rouatbi, 2022.*

She realizes that part of the social exclusion of street children lies in the established care model. While it provides them with shelter and the opportunity to return to school, it does not allow them to establish a sustainable relationship with their environment. Nor does it ensure them acquire the skills required to become active citizens by the time they reach the age of 18, and legally lose the privilege of the institution's services. In searching to address these shortcomings and improve the global care model, the student started to investigate on the side of social sciences looking out for an appropriate solution. This until she ends up coming across the concept of "Social Cohesion" in which she finds a real opportunity to seize. Therefore, she looks for a site suiting best her target of including street children in a social and educative dynamic. She chose a therapeutic farm for disabled children as the project's context. She obtains an agreement from the farm's managers who welcomed the idea to ensure training of street children and hosting them. They find promising the fact of making close both disabled and street children sharing a living frame. They propose her a piece of land inside within the farm area where she might implement the project.

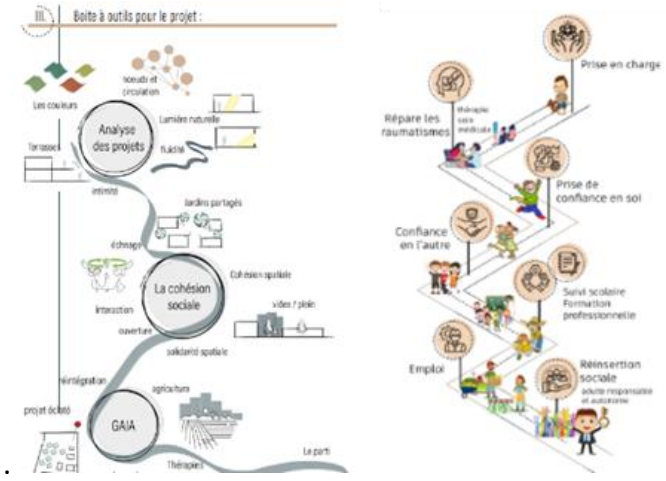

Figure 2. *Tools and targets of the M1 project's design process, Ishraq Rouatbi, 2022.*

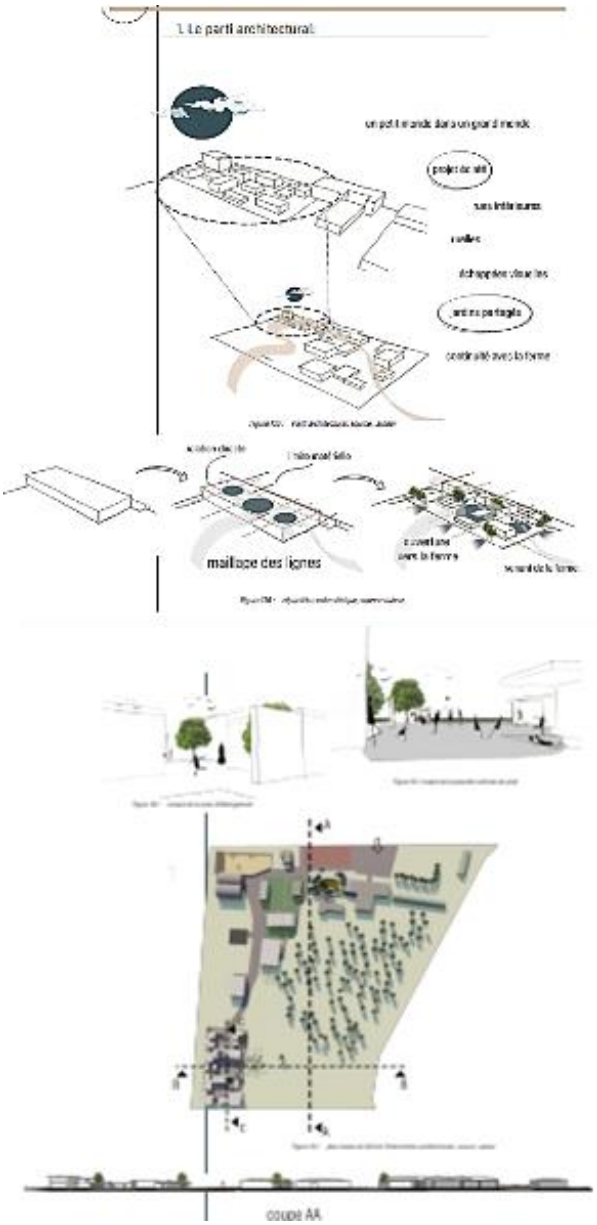

Figure 3. *M1Project, Ishraq Rouatbi, 2022.*

What stands out the most from this first analyzed case, is that the use of a Qualitative Social Survey allowed an understanding of the phenomenon of street children and the way to deal with it. It let the student take a critical look at the domestic model of care for street children. The Urban Transect, for its part, made it possible for the student to understand the relationship between care institutions she analyzed and the sites where they are located. While the Functional Analysis helped her identify the basic spatial needs and then detect the shortcomings in the functional programs of the analyzed projects. Considering the results of the Social Survey and the analysis of international and local references, the student defines the limits of the local care model for street children. By recognizing what is most problematic, for both the national model of care and the spatial framework for hosting street children, the student begins the process for seeking solutions. Value Creation theory and practice [13] led her to the main concept of her project. By asking what is the best for these children and what we can do more to improve their situation, the student was able to figure out the main concept of the project and to come across the spatial and social framework where to implement it. The spatial sequential approach, on the other side, helped the student process the design of her project in accordance with the analysis' results. She was able to exploit each parameter she identified (social interaction, social support, training, acceptance of others, benefits of the farm as a living environment) transforming it into a spatial sequence in accordance with the prime targets she had fixed.

3.2. Analysis of Second Memoir (M2)

The M2 project deals with an urban void that has persisted for over 30 years in an unfinished urban development project in a large city neighborhood. Living in this neighborhood and affected like other residents by this urban void, the student proposes to integrate this urban void into the neighborhood in a way that best serves the quality of life of its inhabitants. This reflection on the integration of a non-valued urban element revolves around two main questions: on the one hand, what project should be designed for this urban wasteland that would best respond to the neighborhood's current challenges? Secondly, what spatial approach adopting for that design to guarantee better social interaction and a harmonious life for the neighborhood's residents? The student consequently organized her dissertation into four chapters. The first one is devoted to the analysis of the urban planning operation that generated the urban void in question. It deals with the analysis of urban plans and the specifications of the operation that turned out to generate the urban neglect. The second chapter focuses on the analysis of the current spatial context of the neighborhood in order to extract the challenges it faces and the issues it underlies. Mainly based on observation, the analysis focuses on urban neighborhood's organization, urban furniture, shared and private spaces, parking areas, sidewalks and even the dumpsters and their location. The student made good use of neighborhood aerial views, urban sections and urban transect, photos and drawings. She also relied on an analysis of the neighborhood inhabitants' perception of the void, resulting from direct interviews with them and appropriate observation of their urban behavior while crossing the void daily. Compiling the corresponding data helped the student frame the strength, weaknesses, opportunities and threats related to the urban void with regard to its neighborhood [14, 16]. Furthermore, in order to strengthen her understanding of the topic and deepen her analysis' results, she explores a number of contemporary visions in urban planning field [1, 9]. This helped her broaden the potential solution range and made her able to build a new vision on the way to integrate the urban void in its spatial context and reconcile it with its neighbor-

hood.

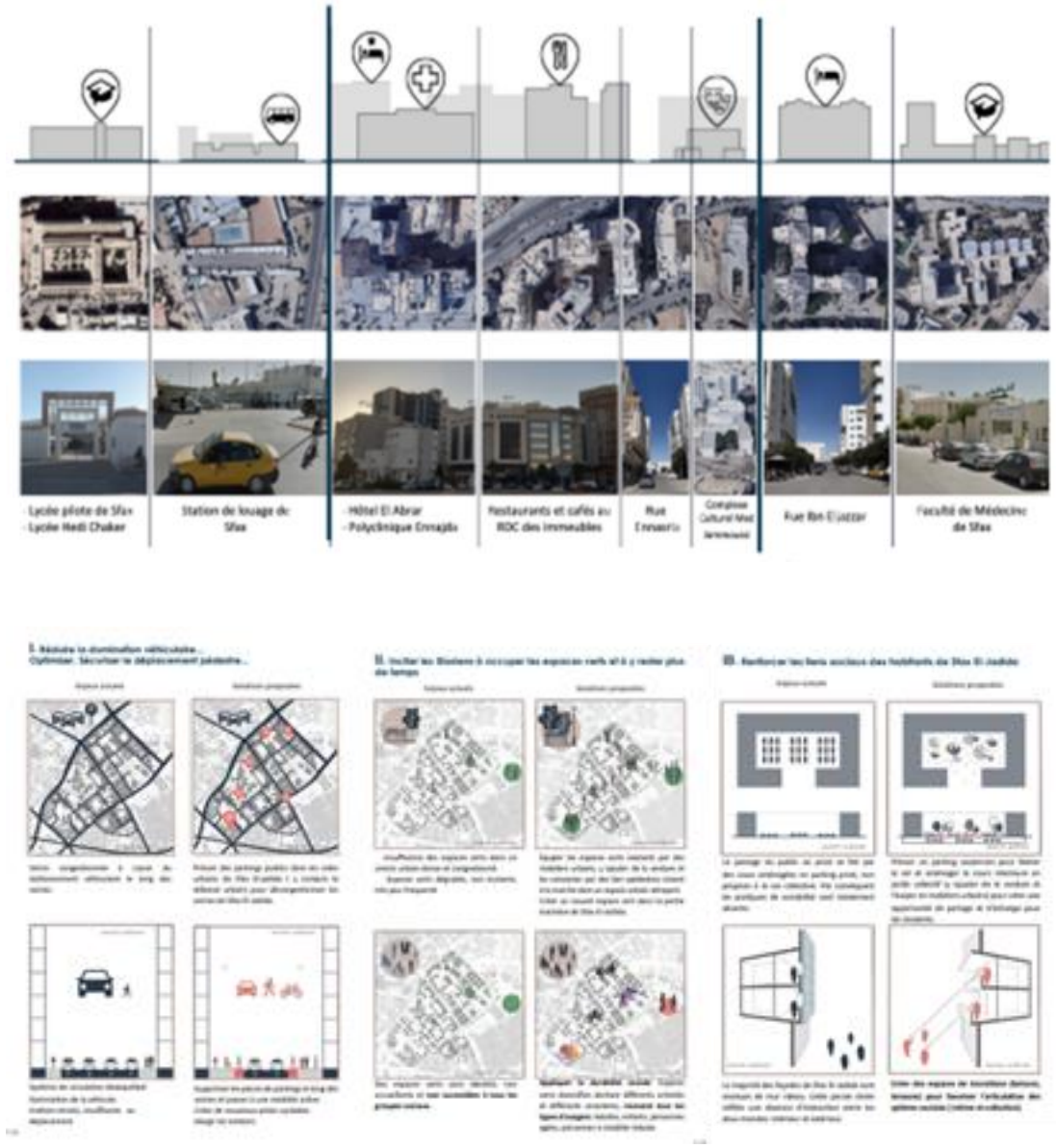

Figure 4. *M2 analysis' Process, Oumayma Chemak 2022.*

In this purpose, the student found it valuable to build her vision on the concept of Human Scale City as defined by Jan Ghel [9]. She supported her elaboration by analyzing a set of projects she labelled "references framework", from which, she retained mainly the necessity to act firstly in small scale and then proceed to extrapolation. A rule that she applied to the concept of "living together" around which she articulated her project.

The student started working on the project by undertaking a SWOT analysis [14, 16] of the urban void she proposed to integrate into neighborhood's daily life. She deduced that the strength of this void lies in its ease of access, and proximity to schools, housing, a cultural complex and consumer spaces. Its weaknesses result from the conflict between the flow of pedestrians and vehicles in its area, the anarchic car parking that prevails and the existence there of buildings in a state of ruin. However, the fact that the void is crossed daily by different categories of people (schoolchildren, university students, employees of surrounding businesses...) is considered by the student as an opportunity to be seized. As for the threats the void presents, they mainly relate to insecurity due to crime and risk of accidents. The student then appeals to the experience of the users of the neighborhood who cross this urban void daily to probe their testimonies and collects their visions about that urban neglect.

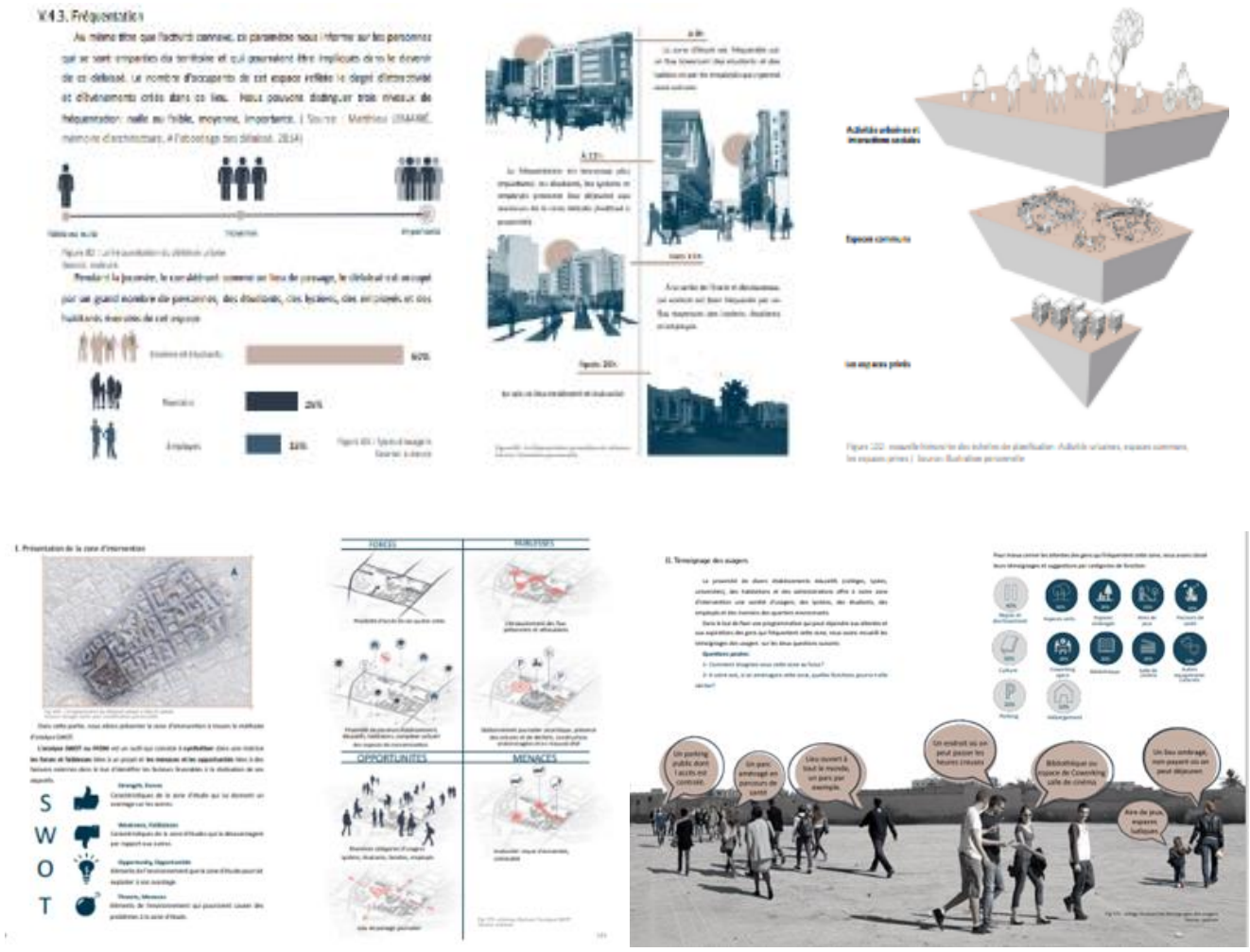

Figure 5. *M2 Design tool, Oumayma Chemak 2022.*

The student imagines human scale spatial interventions considering man in different social spheres where he belongs. She creates spaces for the different users of the neighborhood (residents and visitors, children, students, elderly...). She designs an urban theater, urban cinema, urban park, urban museum and area for urban events...etc. “Living together” is the main concept of the project and the functional mix was her solution to guarantee it. She designs places of entertainment, sharing and social interaction on the ground floor that she calls the living basement of that neighborhood. For the upper floors, she imagines common housing linked by oblong courtyards, sharing spaces and gardens' roof evolving on four levels with a decreasing occupancy rate in the upper levels.

Figure 6. *M2 Urban solution, Oumayma Chemak 2022.*

Figure 7. *M2 Architectural solutions, Oumayma Chemak 2022.*

We note that the analysis phase related to M2 dissertation, is based on reading documents, observation and the experience of the users of this urban void. The search for a solution, on the other hand, is based on referencing and comparing with solutions found around the world for similar study contexts as M2. This approach, using recommended tools such as User Experience [12, 18], Urban Transect [10, 17] and Functional Analysis [8, 13, 20] for the analysis part or SWOT grid and User Experience [18] for the design part, allows the student to become more aware of the complexity of the design context [25]. This is, in our opinion, what helped her find inclusive spatial solutions at urban and architectural scale. Because this awareness allows the integration of all the parameters of context analysis in the search for solutions.

3.3. Analysis of Third Memoir (M3)

"M3" dissertation is about seniors, specifically how to ensure their inclusion in a small town which has the only care center for the elderly in the "Cap Bon" region where the town in concern is located. Organized into three main parts, this architectural brief identifies factors that contribute to the urban exclusion of seniors. Referring to statistics and social studies, it lists the main reasons for this exclusion, which is largely the result of social difficulties or health problems such as the death of a life partner, loneliness after departure of children, generation gap, loss of autonomy and low levels of social interaction [21]. The city does not always facilitate mobility and social interaction for older people and does not meet their needs, while being healthy and having a good quality of life requires to be active. According to the World Health Organization, an age-friendly city must take into account their diversity, promote their social interaction, respect their lifestyles and take care of their needs and expectations. Based on the French version of the World Guide to Age-Friendly Cities [22], the student who conducted this dissertation developed a grid of criteria that traffic lanes, sidewalks, street furniture, public toilets, public buildings and green spaces must meet in order for the city to be considered age-friendly. Based on the Active Ageing, recommendations policy Framework [21] three pillars ensure active ageing which are participation, health and security.

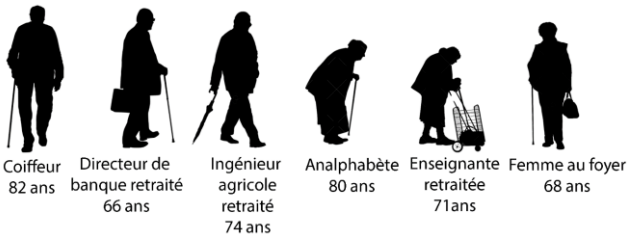

Figure 8. *Profile of the interviewees in the social survey led by M3, Imtinen Dhaouadi 2022.*

Since her goal is to promote her own city and make it age-friendly, the student analyzes it in terms of how sen-iors experience it. She compiles a list of the places they frequent most and the places where they gather. Through observation, social survey and urban transect, the student extracts the most problematic areas for seniors in the city. She notes that the height of sidewalks is inadequate for older people. She notes the lack of street furniture for seniors same that for public restrooms, in the areas they frequent. She also noted the lack of safety at crosswalks, the lack of green spaces in the city and that of meeting places except for the market square and a garden that needs to be rehabilitated. Lastly, she is interested in the care center for the elderly and particularly in their journey to the city center. The student notes that only 2 out of 42 residents of this center go there once a week. The lack of transportation means even though it is only 800m far away and the absence of any urban development along it discourages the elderly from walking it.

Through an urban 3D restitution's, the student defines zones where she could intervene for improving the daily living of seniors in the city and ensure their urban inclusion.

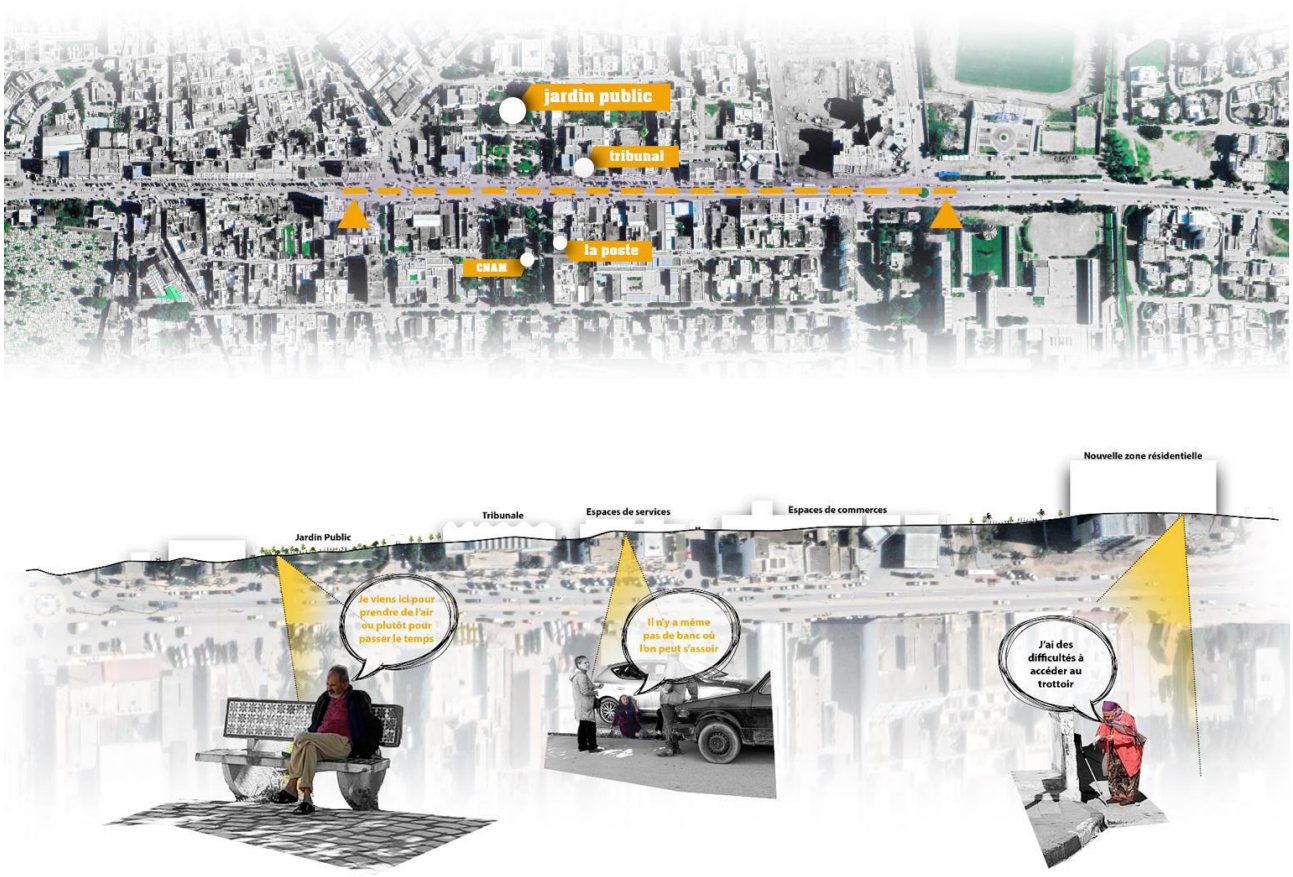

Figure 9. *M3 Urban Transect, Imtinen Dhaouadi 2022.*

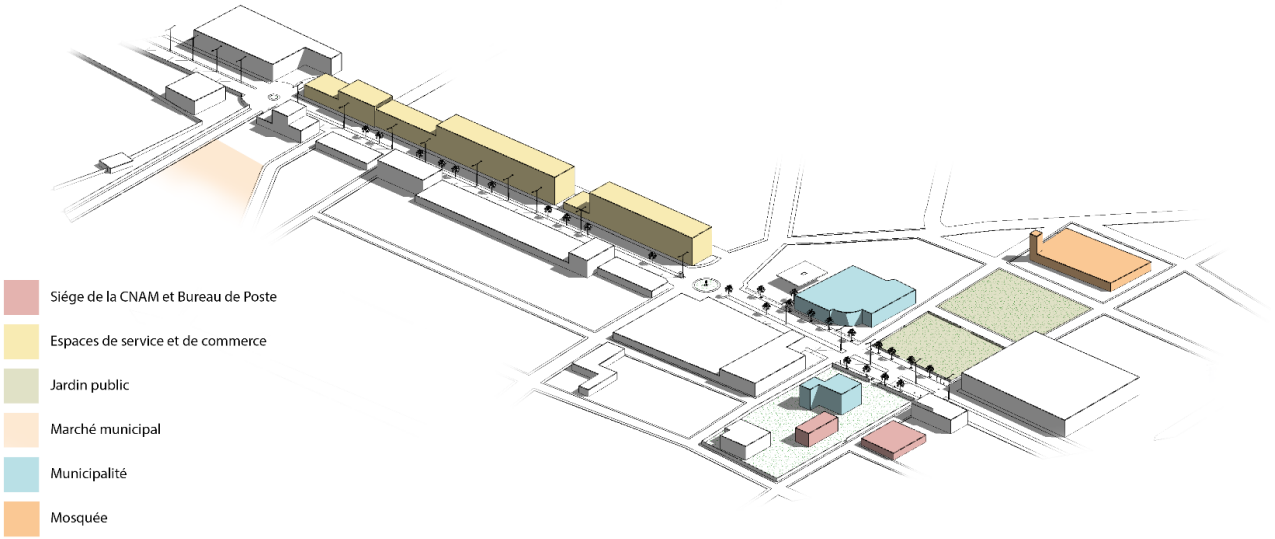

Figure 10. *M3 Localization of intervention's zones, Imtinen Dhaouadi 2022.*

The student concludes that it is when they leave their neighborhoods towards the downtown that their fears surface. For many older inhabitants, the downtown remains an unfamiliar and unexplored space. The Synthesis scheme below recapitulate results of the student's analysis.

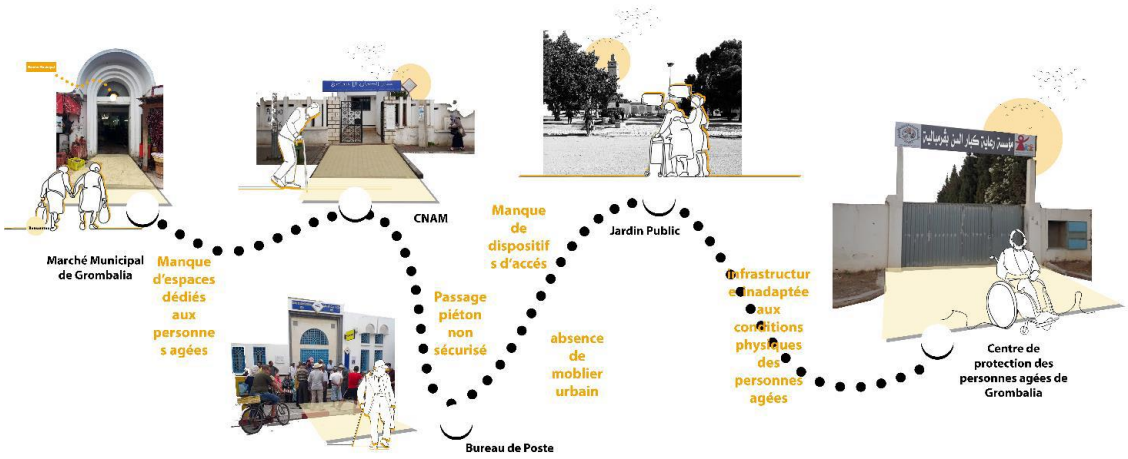

Figure 11. *M3 Synthesis scheme, Imtinen Dhaouadi, 2022.*

Once the areas of intervention defined, the student begins the process of finding solutions. Each localized area is a support for the research of references. The point is analyzing and understanding the best solutions to adopt in order to decide which ones would be more in line with the context of this city. In addition to intervening on the urban level, the social survey conducted among the elderly led the student to propose a collective housing project that takes into account the expectations and needs of the elderly. This proposal is an alternative response to the discomfort felt by elderly living in the city's buildings. Here we present the student's design process and what she proposed at the urban and architectural level.

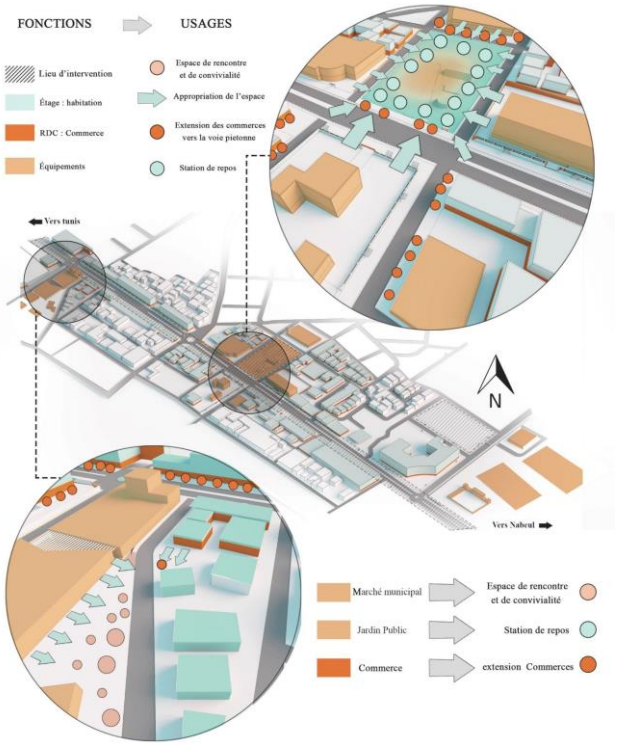

Figure 12. *M3 Functional analysis Process, Imtinen Dhaouadi 2022.*

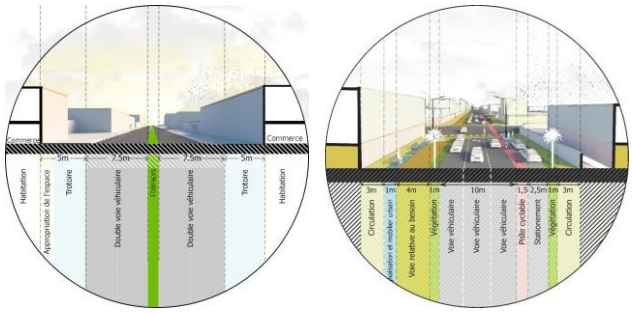

Figure 13. *The main avenue of the city before and after M3 intervention, Imtinen Dhaouadi 2022.*

Figure 14. *M3 architectural project, Imtinen Dhaouadi 2022.*

In M3 dissertation, analysis and design tools proposed allowed the student to define where and, above all, how to act. The pedagogical approach proposed in this article concerns both the analysis and design phases. Inclusion as we understand it is not only assimilated in the social sense but for the architect it must be transcribed into spatiality serving the daily living of people [23]. Contacting users and understanding their own experience of space is as necessary as understanding of physical parameters of the site for the architect. Our approach bases, among other things, on the fact that it is necessary to detect all the resources of a site, whether human, cultural, economic or natural and to make them serve people living in.

3.4. Analysis of Fourth Memoir (M4)

The last architecture dissertation we analyze, is about urban squat of a non-functional railway line. Existing for almost fifty years, that squat is generating an entire system of functions and users who daily struggle to subsist. Native of that neighborhood and having grew in there; the student has more than one motivation to choose it as study's work subject. As future architect he wants to improve living quality of his own neighborhood and convince stakeholders in this system that change in better is always possible if we know how to exploit the resources of that district other way. It was a challenge for him and as his dissertation director; my mission was to accompany my student in that challenge. I recommended him to structure his work in four steps. The first step is to understand urban squatting as a phenomenon at the international level and then at the national level by referring to situations where informal occupation of urban space is manifested and to a recognized bibliography. The idea is to extract what characterizes this phenomenon at the local level in terms of evolution and manifestations. Then, in the second step, by analyzing his own city and considering the neighborhood of his childhood as part of a whole, which is his hometown, the student constructs an objective critical positioning towards that context that he is studying. The third step of this architectural dissertation is the understanding of the urban squat along this railroad. Detecting the components of the context and the connections between them is important in order to seek solutions to the problems experienced by the users and to those that can be identified during the analysis. Concluding this phase with a synthesis that guides the seeking for solutions allows the student to begin the design process. It is in the fourth and final step of M4 that the project, is outlined. Below are the main results of each step of M4.

What the student understood was that the urban squat is, in essence, a social manifestation driven by a need for collective expression, or a need for work and/or housing. It can be the consequence of urban mutation, just as it can generate it. It is also a form of social resilience and a means of resistance against laws or authorities that exclude squatters.

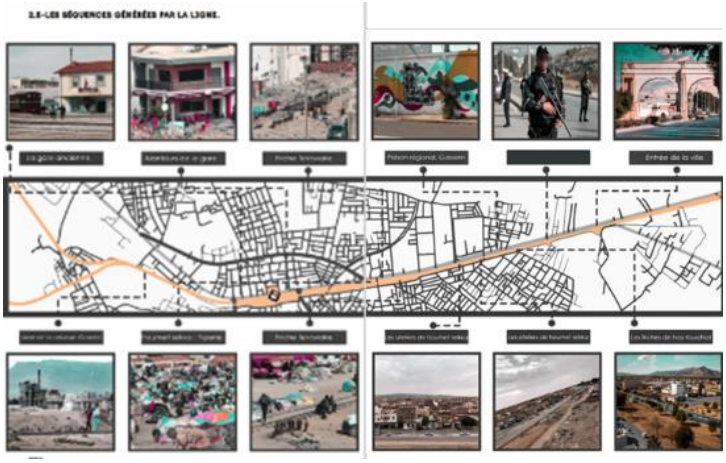

Figure 15. *M4 Railway line wasteland sequences, Wajih Bouras 2022.*

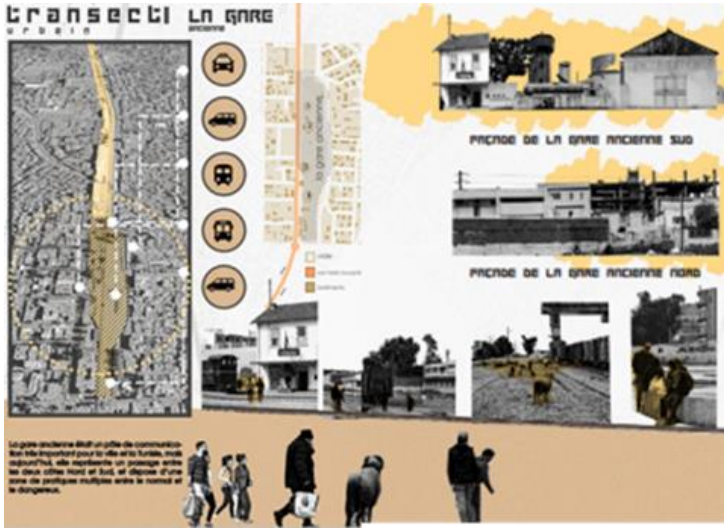

Figure 16. *M4 Urban transect., Wajih Bouras 2022.*

The particularity of this analysis is that it uses a reference each time that helps the student to deepen the understanding of the context analyzed and to argue the results reached. This mode of analysis is a part of the exploration that we defend in this research, useful for both analysis and design process.

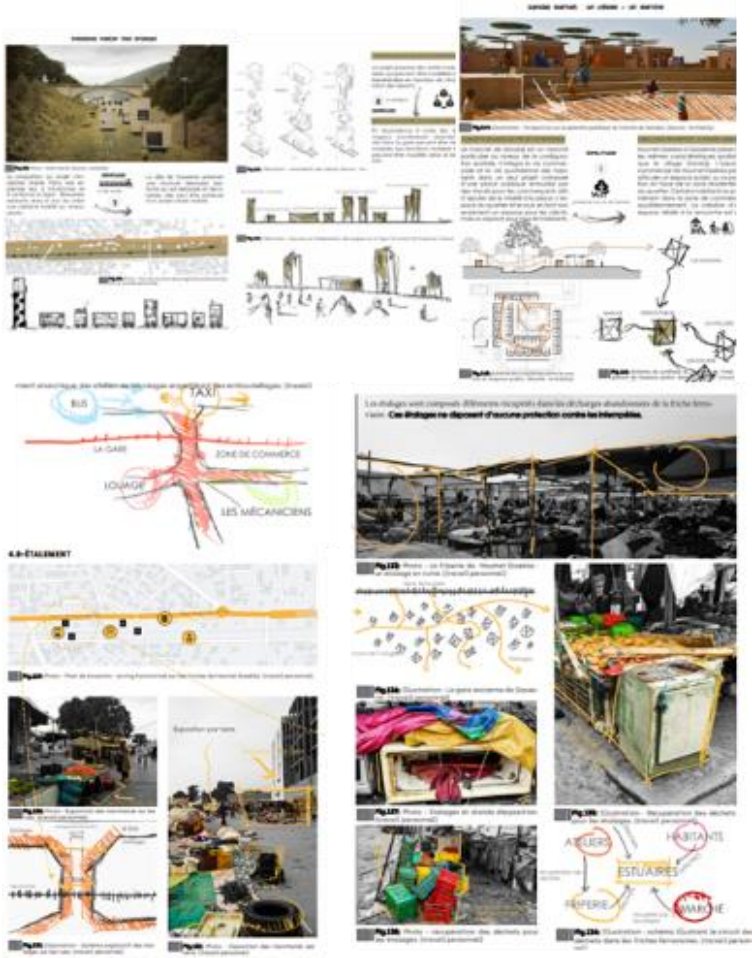

Figure 17. *M4 Samples of analysis process, Wajih Bouras 2022.*

Figure 18. *M4 Project, Wajih Bouras 2022.*

The Urban Transect is used to transcribe the results of the analysis and at the same time to feed the design process that is initiated during analysis. Indeed, according to the pedagogical approach advocated in this article, the analysis and design phases do not necessarily constitute two distinct stages. They are parts of a whole process in which design takes its essence from the understanding that emanates from engaged analysis and exploration. While we recognize that usually each one of them can constitutes a separate process, we consider that developing a vision serving an inclusive project requires an equal awareness of details and totality of the design and/or study context. An inclusive project must integrate, in our view, the stakeholder system, the physical components of the site and the human and material resources available. This is what reinforces the correlation and entanglement between design and analysis and can lead to their merging, as in the case of M4.

4. Discussion and Evaluation of Study's Results and Their Relevance

The pedagogical approach presented in the current paper recommends tools that are not often associated with nor in frequent use in architecture or urban design. In this study SWOT analysis [14, 16] and user experience [12, 18] were challenged as both design and analysis tools. M2 used them in the design stage while M4 based a part of its analysis on users' experience. M2 and M4 both proposed projects that take in charge the diversity of inhabitants and visitors or users of each context they deal with [23]. This is the very way this study considers inclusive design. Regarding that, we can objectively confirm the efficiency of the tools we propose. M1and M3 used the social qualitative survey for their analysis that they associate to a spatial analysis where they use urban transect [10, 17]. The exploration [2, 15] and value creation tools [5, 6, 8, 13] even though they were not always apparent constitute a conducting line for the analyzed dissertations. Seeking different alternatives of solutions, referring to what exists in the world and at the local level, and asking "what is better to do?" and "what we can do more?" [2], were questions that we push students to ask because that what guarantee them to be creative. Indeed, current research acknowledges that this approach is in fact what strengthens their creativity and ensures the added value of their projects. Functional analysis [20], on the other hand, intervenes at both stages, analysis and design. According to this study, it is essential to understand the functions that are necessary, as well as those that are expected or possible. This implies that it is appropriate to use both functional and value analysis tools. In this way, we believe that the new functions to be implemented will be useful, innovative and relevant. And that is what, in our view, increases the chances of adding value to the project.

What emerged from the analysis of students' dissertations is the selection of tools operated by each one. Indeed, recommended tools depend on each dissertation's subject and context. Nevertheless, urban transect [10, 17] and qualitative social survey [4, 11] were used by all. Urban transect is at the same time an analysis, synthesis, and design tool. To ensure inclusivity of design, it is necessary for this study to apprehend the stakeholder system of any context we work on. A qualitative social survey allows this in an easy and direct way. Urban transect presents the benefit to be, at the same time, an analysis and a synthesis tool. It is even possible to use it in the design stage since it accepts different modes of representation, communicates analysis results, and enlightens project's goals. It is probably for this reason that all students made use of it, even though; each one of them represents it in his or her way. The flexibility that the Urban transect tool offers and the deep understanding it allows make us recommend it strongly. It makes it possible to visualize and relate the components, the system of stakeholders and the resources of the project context. It also, makes it possible to link them to the project to be designed goals as to its key ideas and ensure in that way the inclusivity of the project. This study, also, exposes a way to architecture dissertations' pedagogical direction. It bases on leading students to construct their own critical vision of the context and all design parameters. The presented approach allows particular importance to help students operate choices, develop valid arguments, and make decisions in accordance with the targets they define them-selves. The role of the dissertations' director is to guide the students in structuring their architectural dissertations according to the position they adopt with regard to the subjects or contexts they are working on.

5. Conclusion

This research shows a number result:

1. To lead an inclusive design, it is possible to combine different analysis and design tools within the design process. This combination means also their use, at the same time, in both stages.
2. Design process should include analysis and exploration parts.
3. Analysis may comprise an exploration phase.
4. Awareness of complexity of the design context (components, stakeholders, resources and links with immediate environment) and of the design itself as a process that appeals exploration, positioning, choices operating and decision making is capital to conduct inclusive projects.
5. Inclusivity is a large concept that relates to human fact since it is linked to environment in its natural and artificial compounds.
6. Efficient Analysis should put in light all own resources of a design context as those affordable to it.

This paper presents a pedagogical approach to teaching architecture in the final year of its curriculum. It communicates a combined way of conducting the contextual analysis and inclusive design processes. It also presents a way of

coaching students in their architectural dissertations work. In this research, inclusive design offered us the opportunity to build on this approach, and taught us that separating the analysis stage from the design stage is not always good or possible in architectural and urban design. This study also shows us that exploration can be effective for both analysis and the design process. Indeed, analysis is a process of understanding, demonstrating and finding concept solutions. That is why the design process needs it at every stage. This research has prompted us to deepen our pedagogical approach and question its effectiveness in order to develop it further. This is why we are proposing "project in action" as a new theme for the architecture workshop in the final year of teaching. We are building it around the associative dynamic that aims to transform the territory. We aim to collect new study materials for further research. We hope to open up new avenues for the field of architectural education and find new didactics to serve it.

Abbreviations

ADS	Architecture Design Studio

Author Contributions

Samia Gallouzi is the sole author. The author read and approved the final manuscript.

Conflicts of Interest

The authors declare no conflicts of interest.

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