

Urbanization of Egyptian Universities as One of the Factors of the Legal Personality of Universities and its Impact on the Quality of Education and Study Environment (Case study: Helwan University)

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Introduction:

Universities are the highest educational institutions that are entrusted with providing what society needs from specialists in various fields of development, and they represent the basic centers of scientific and applied research, and the university is a group of buildings and urban spaces belonging to this campus and collectively constitute the character, identity and architectural and urban characteristics of the university.

Despite the presence of many Egyptian universities in important locations within Egyptian cities, on large areas, representing a large capital, in addition to containing a large number of students in the most important stages in the formation of personality and belonging to the university and the society, most of these universities lack the legal architectural personality that distinguishes each of them, in addition that the urban spaces in them lack the environmental and climatic treatments that qualify them to be usable and sustainable urban spaces, in addition to the absence of aesthetic expressions and standards of safety, comfort, ease of use, diversity, visual clarity and others.

Studies and research have proven that there is a close relationship between the nature of the university environment and students' behavior, achievement and attitudes towards study. This leads to behavioral disorders represented in rejection, intolerance and violence, in addition to their low levels of achievement, this is what the research will study and try to apply to the model of Helwan University in Cairo.

The university campus and the impact of the architectural and urban character on the educational process:

The urban spaces that express the most basic activities and needs are the external spaces of the university campus, where there are many activities and different needs to be used in the urban space by students and faculty members.

The functions of the spaces vary according to the activities of the students in each of them to suit their needs as follows:

- **Movement spaces:** they include cars and pedestrian movement, and its function is to link university buildings and the various spaces, and they serve everyone without intersections in the paths.
- **Recreational spaces:** occupy the primary role in university spaces in terms of size and number, as they include many different activities such as rest, sitting, social meetings, communication, and various student activities.
- **Service spaces.**

The university urban spaces must fulfill a number of needs, including:

- Determining the entrances to the main buildings, whether different faculties or administrative buildings and others.
- Providing multifunctional spaces for the purpose of serving students in line with the multiplicity of their personalities and interests, and taking care of the social aspects of students in university urban spaces.
- Achieving aesthetic requirements within the formations of urban spaces.
- Achieving the standards of containment required within the urban spaces to achieve standards of privacy and security.
- The importance of interconnecting urban spaces within the university campus with each other.
- Integration of urban spaces with the surrounding buildings from the functional, spatial, and morphological aspects.
- Integration of urban spaces with the nature and formations of the university campus.
- Creating some sunny and shaded places in order to achieve comfort for leisure users at all times of the year through the distribution of seats and plant elements.
- The importance of providing outdoor leisure activities, university artistic and sports activities, stadiums, and other needs and activities.
- Considering the environmental, climatic and thermal studies and the concept of sustainability and connection with nature.

Physical and physiological design needs:

- **The main arena:** Each university has a main space that houses students, which is easily accessible from all parts of the university, and often contains the university's monument.
- **Activities areas:** These areas give comfort and tranquility and there are various activities in which: to sit, or practice light sports, or hold some celebrations and events, and study.
- **Service areas:** Such as cafeterias, toilets and sanitary units, and there must be guiding signs that direct the user so them, and they must be easily accessible.
- **Urban furnishings:** These include footpaths, sculptures, fountains, benches, light covers, gates, fences, staircases, signposts, lighting units, kiosks, benches, natural elements, paving, bins, and other contents that reflect the function of space.

The researcher made an attempt to achieve these theoretical studies on two models from Egyptian universities, one of them from private universities (the American University), and a public university (Mansoura University), in order to monitor the successes and shortcomings in achieving the design considerations that were monitored in the study.

A case study of a private university - The American University:

The new AUC campus project in New Cairo is built on an area of 260 acres and was completed in 2008, and accommodates 5,500 students and 1,500 faculty and staff members. The university has received a special award from the U.S. Urban Land Institute (ULI).

Architectural Designers: Abdel Halim Ibrahim, and Carol R. Johnson Associates, Legorreta + Legorreta, Boston Design Collaborative.



Elements of successful design:

- The presence of a main axis linking the campus buildings through successive courtyards, external and internal courtyards, and complete separation between pedestrian and car traffic paths.

- The main yard of the campus is designed as a series of small roofed and semi-roofed courtyards defined by small water pools, fountains, palms, shrubs and other plants, and the campus center provides students with a common space for dining, gathering, and organizing excursions.



- There is a sports center consisting of three floors, in addition to a multi-purpose field with a capacity of 2,000 seats, a swimming pool, a football field, a running and cycling track, six squash courts, tennis, basketball, handball and volleyball courts, and halls for martial arts and aerobics.



- Designing 27 water fountains that contribute to the cooling of the campus and create an aesthetic environment.



- The urban space of the university also houses about 150 different types of plants, that achieves comfort and tranquility.

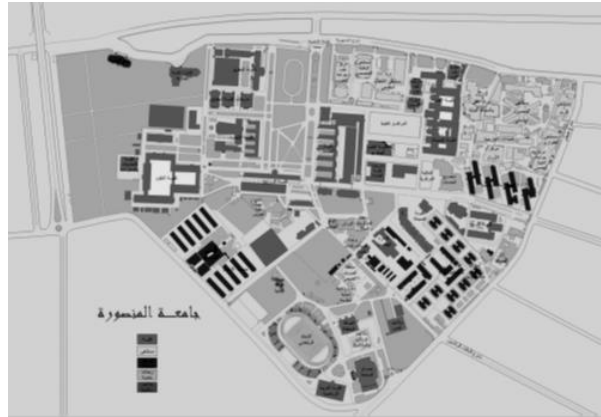
- Providing areas for various activities, presentations, and celebrations.



A case study of a public university - Mansoura University:

The university is considered the sixth in terms of its establishment among the universities of the Republic, and the campus occupies an area of approximately 300 acres from the southwest side of the city of Mansoura.

The study began at the Faculty of Medicine in 1962 as a branch of Cairo University, then East Delta University was established by Law No. 49 of 1972 and the name was modified to Mansoura University in 1973.



Design Elements Analysis:

- The main corridor was distinguished by the distribution of wooden seating benches along the main road, and lining up trees and palms on its sides, providing shades in the pedestrian paths and providing an aesthetic environment.

However, the number of these trees is not enough to achieve thermal comfort, and there is no separation between the movement paths for pedestrians and cars in the corridors and the absence of a sidewalk for pedestrians in some areas, which harms the safety and security.



- The Mansoura University campus is characterized by the availability of green spaces and public urban spaces, which in turn provide a suitable environment for students' outdoor activities, but the lack of interest in these squares, whether external or internal courtyards of faculties, the lack of connection between them and the absence of shaded areas and providing them with comfortable places for students to sit, reduces their essential role.



- The university is characterized by the presence of six gates to the campus, but despite the large size of these gates, the places designated for entry are small and not commensurate with the large numbers of students, which causes crowding of students during entry and exit, especially at peak times.



- Mansoura University was designed as a group of separate faculties that are united by the campus, and united by the student's combined courtyards, but they are different in their architectural characters, which had the greatest impact on the students' feeling of not belonging to the university as a whole and the non-interaction of students of different faculties with each other.



Helwan University study (case study for research):

Helwan University was established in 1957 on an area of about 350 acres. The university consists of 23 different faculties distributed over several locations in the governorates of Cairo and Giza, and although Helwan University is the newest among public universities, it includes some of the oldest faculties in Egypt, there are 10 faculties inside the campus in Helwan.



The situation of Helwan University campus before development:

- Helwan University, the largest of the Egyptian universities, however, the campus lacks a unified architecture, indicative signs indicating the function of the place or the names of colleges, which leads to confusion.
- The lack of green areas and sufficient shaded places in hot climatic conditions, or seating places makes it difficult for students to reach their colleges easily and comfortably, and the difficulty of practicing various social and cultural activities in the outdoor spaces and communicating.
- The lack of cafeterias or restaurants near the squares and student gathering places.
- The deteriorating condition of the corridors, squares and sports stadiums that need to be developed and shaded for users.
- Not having enough space for prayer in the mosque and ablution places.
- Lack of maintenance of toilets drainage and feeding, with crowding in them at the end of the day.

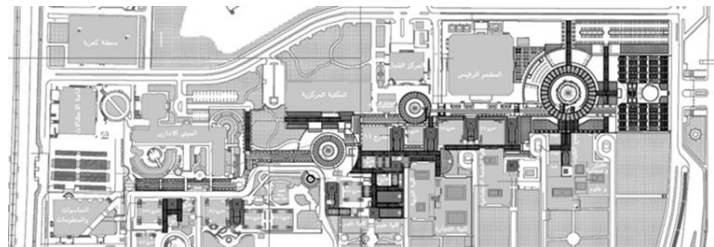
A proposal for the development of Helwan University:

After what was studied in the research, and what was monitored in the field visits to the university campus, and the study of the financial budget to raise the efficiency and maintenance of the university, it became clear the necessity of developing urban spaces. This will be done by developing the following points:

- Modifying the main corridor connecting students from the main gate to their colleges and squares and developing them



Main corridor before modification



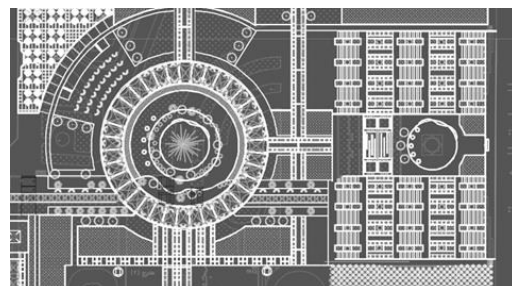
The main corridor proposed for the development

- Restoration of sidewalks and curbs, taking care of corridors, shading them and giving them an aesthetic shape using open or semi-open pergolas or canvas umbrellas to reduce the intensity of the sun's rays and heat.



The proposed main corridor after the addition of awnings

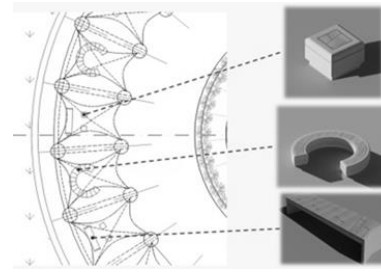
- Improving urban spaces to suit the practice of educational, cultural, social and recreational activities by providing natural and attractive elements for students in the squares, activating green spaces and providing shaded seating areas that provide comfort and beauty.



Proposed development of the main square

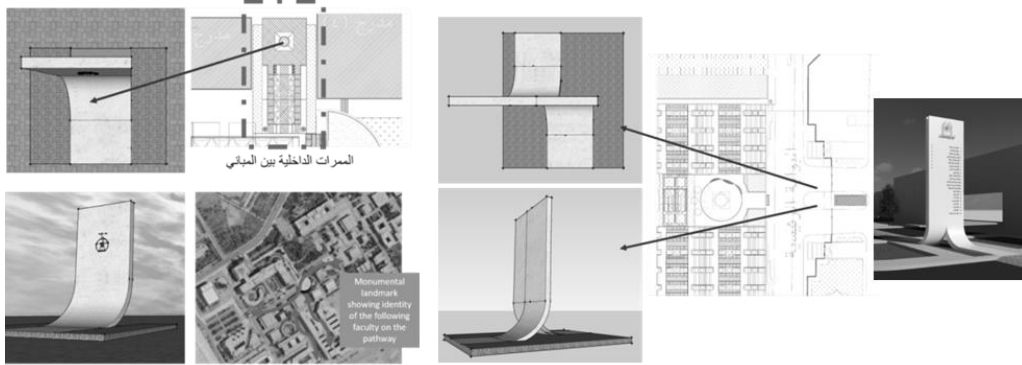


Fountain design
Which represents the visual attraction - Landmark



Shaded seating locations and design

- Finding clear places in the main and internal corridors to place maps and guiding signs, while providing a simplified guiding map to clarify the locations of the elements in the university that explains the functions and content of each building and in turn expresses the personality and identity of the university as a whole and for each college separately.



The proposed design of the guiding signs and their locations

- Redesigning the stadiums and shading the stands using canvas umbrellas.

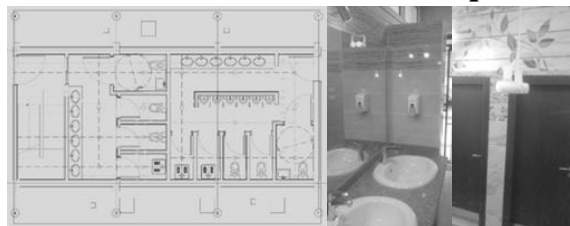


- Providing a small mosque with toilets and full services.



The current state of the mosque

- Improving and developing the bathrooms and following up on their maintenance to work more efficiently.



- Developing the facades of buildings and improving their condition due to the damage of paint layers and leakage of sewage water.



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