

The flow of university interactive spaces University of Baghdad - Case Study

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ABSTRACT

The interest in the flow and flexibility of spaces is one of the means that contribute to the ability of space to absorb emergency and future changes, and in a way that contributes to the survival of renewable spaces, just as attention to the axes of movement and its flow between different functional spaces creates a kind of communication and dynamism among the users of those spaces, so the research dealt with The foggy cognitive perception of the fluidity of spaces and their social interactions in an effective part of the city, which is the university environment, and therefore the research aimed at the importance of achieving fluidity of space and movement, and what creates that fluidity and flexibility of university interactive relationships, and then knowing the extent to which the flow of movement and social interaction is achieved in it.

The introduction:

The university is currently taking the lead in the modern society, and the development of any society depends on it. The development that took place led to a change in the links between the student and society, and thus affected university education. The goal of university institutions became openness to society, considering that society is the surrounding environment. Which needs requirements that are supposed to be met, so a development must be made in the field of its planning, design and the activities it includes.

Research problem: The presence of unplanned and unplanned changes to the use of spaces within university campuses caused a change in the importance of these spaces and made them not perform their function properly.

Research goal: Clarify the cognitive perception about the importance of achieving fluidity between the various university spaces and the pattern of movement in them, and the student social interaction that occurs as a result of this fluidity and flexibility.

Research Hypothesis: The lack of cognitive perception of the concept of space flow and social interaction in universities did not help the scheme on how to employ that concept on an effective and vital aspect in their spaces.

key words: Fluidity, flow planning, flexibility, interactive spaces, University of Baghdad

Methodology:

- A statement of the flow planning for university spaces at the level of educational buildings and external spaces and the paths leading to them, and the application of these cognitive perceptions, to a university product, so the University of Baghdad was chosen.
- Clarify and explore the patterns used in the campus in terms of spaces and movement Research Hypothesis Explanation of the extent to which the flow of movement and social interaction has been achieved in university spaces.

Study area: University of Baghdad in the Jadriya district

Flow-liquidity concept

fluidity symbolizes dynamism and liberation, turbulence, and protests to stability. It is also characterized by ease, flexibility, and smoothness in dealing, flowing, and finding solutions and alternatives to problems that arise casually. It has multiple synonyms such as fluidity, flow, elasticity, movement, and impermanence. Certainty, continuity, communication, and others, and it is a concept against stability, or the idea of change that we strive not to change because we fear the results and that they do not affect us, so we seek to create larger spaces to isolate these variables, that liquidity is like putting our important things in a small boat to face the impending flood. Here we live by the sails of change and adapt the boat's course against the current instead of drifting with it. Simple life means fluid life without restrictions what people consider freedom (Horbovetz, 2020), fluidity and flow are modern concepts in the urban, cultural and social intellectual field, in which flexibility, continuity, connection and harmony are emphasized and effectiveness in contrast with what was prevalent in the past from the concepts of hierarchy, assertiveness and restriction (Simonsen, 2004).

Space concept:

The concept of space took a large part of the thought of philosophers and thinkers over time, Aristotle¹, sees that it is a dynamic field moving towards limited directions, which is the product of the interconnection of a collection of places, Lucretius² sees that bodies and space are components of nature and bodies move and take their places within this space (Faraj, 2005), it is difficult to separate man from his surroundings, where space is the basis for expressing the existence of man because his existence is spatial (Schulz, 1971). From the engineering side, it is a space that is linked to the facades of the surrounding buildings, aesthetically and geometrically, and helps the relationship with the perception of space (Krier, 1991), urban space according to Ledrut. Raymond³ "Space, if we like it, is everything and nothing at the same time," meaning a few and a lot together. The space that appears as a void becomes something because it is existential and is present throughout, so space continues to exist around us and this is the basis of its importance. Three-dimensional aspects of our daily life and experiences, as well as a system of relationships that link mass and space and a human scale to be an urban structure that achieves the identity and continuity of society, which is all kinds of spaces between buildings that are related to multiple human activities such as work, shopping, rest, recreation and others, and that its shape, size and psychological impact. And the visual depends on the nature of the buildings around it (Rida, 2014), the space defined by an unroofed frame that deducts a part of the infinite space represented by nature arises from a reciprocal relationship of man and what he perceives (yoshinobu, 1981), and it is not a physical space that occupies a place, but an important philosophical, spiritual, natural and economic attempt. To a large extent, it is comprehensive as it contains a complete sequential hierarchy of space from the general to the semi-public. The private space (Al-Azzawi, 1998) is not only a place but a representation of what a person dream of (Morris, 1973).

fluid space:

fluid space means borders that are characterized by blurring and continuous change that is difficult to stop, with the importance of distances with the amount of human flow through these spaces and its work opposite to the solid space that seeks to impose the sovereignty of difficult borders, that the world is constantly changing and unprecedented (Baumann, 2016) and fluidity. It means moving or changing the borders or making them blurry, creating new intermediate spaces that are not public and private, but a new interface and thus create a flowing space, says Jorge Oteiza describing, the concept of flowability without defining the borders there is no flow because this concept is related to its opposite or complement (Stratis, 2012). The continuity of

¹ (384-322 BC) Greek philosopher, one of Plato's students and teacher of Alexander the Great, wrote on various subjects including physics, Poetry, logic, animals, biology, and forms of government

² One of the great Roman poets, interested in the nature of things, and in the philosophy of Epicurus in the creation of the universe

³ ³ Jorge Oteiza: Spanish sculptor, architect, poet and philosopher (1908-2003), one of the most important artists of the twentieth century, his work combined the struggle of volume, matter and space, with the innovations of avant-garde movements (<https://www.biografiasyvidas.com>)

spaces between the public and the private and the interior and exterior creates new relationships and synergies, and through this it can be concluded that the public space consists of elements interacting with each other through various systems and materials, thus producing various functions (Glab & Flores, 2011).), the flow of space is the deduction of a series of relationships that affect the shape, and work to form flows, making it in a continuous state of change, transformation and formation (last, 2014), and it is an actual influence on the shape of space Its function and the recipient, because it gives vitality, movement, and dynamism to him, in the sense that it gives the space a spirit, life, continuity and dynamic interaction between man and his surrounding environment (Suwaidan, 2017) The availability of many options of different levels is what represents the fluidity, the greater the density means the greater the flexibility.

Spatial concepts focus on connectivity and mobility of fluidity, flow, and fluidity as units of social life rather than hierarchy, boundaries and form (Simonsen, 2004) Stein and Harper (2005) show that flexible and conflicted boundaries between public and private spaces foster innovation and creativity, and that fluid conditions It has to do with society and its relations, since the flow represents uncertainty, movement, and instability, as opposed to stability, which is organized and fixed. Urban planning is in constant change, so through flow, the flow of changes can be understood. Instead of shedding light on the mechanisms and consequences of change, a context is adopted for it, so Limits to flow and fluidity must be set. There is neither complete stability nor complete flow. They are a connected chain with each other. Working on planning a space does not mean controlling its flow, as much as the ability to manage it, and prevent its destruction by other forces, in order to preserve the public interest, which is also considered streamlined due to the multiplicity of interests and their instability and stability.

Procedural definition: It is an interactive relationship between multiple forces of urban space, affecting the space and changing its characteristics, at the level of form and relationships. Space with its external surroundings, mystery, smoothness, flexibility, dynamism, transformation.

The concept of interaction:

It is a reciprocal relationship under specific conditions between two parties, and the effect of interaction is either negative or positive, and interactivite is of Latin origin and means interaction, cooperation and communication between two individuals, that is, exchange and interaction, and it is an old concept, but its use is contemporary and a product The development of technology and communications, and the relationship between members of society and the machine, and this term was circulated in the nineties of the last century, after mentioning Schramm⁴ In his book “The Process of Mass Communication” in 1954, it means the practice or mutual interaction between individuals and they have a mutual influence and influence in the communication process (Al-Ayadi, 2001). He has a common conception with them, that social interaction plays a role in human behavior, as he acquires all human qualities from his surroundings. A person who does not have interaction in his surroundings is late in development, since interaction develops the person and develops his social skills and personality, in addition to gaining the ability to dialogue, discussion and participation.

From the above, we find the term interaction means interaction and communication between two sides, and that the basis for the formation of the group is social interaction, and with the technological progress, this interaction increased and became more important than before within the urban space and in a way that provides cohesion, comfort and harmony for space users from members of society at all levels and generations.

Interactive space:

Interactive spaces play a vital role in societal interaction, as these places, when designed, must take into account the public interest and contain a lot of public participation. Interactive is the product of the interaction of many complex factors (Schulz, 1971), that space is the embodiment of human dreams, where its importance is greater than being a place (Morris, 1973), a

⁴ Wilber Lang Schramm: Communications scientist, the first to train the first batch of communication scholars, founder of the Department of communication studies at American universities

space that brings people together and provides interactive social and cultural activities in the city. Interactive public places are an element Effective in human social relations, as it brings people together and allows their work and cooperation together, in addition to seeing what others are doing, since general participatory activities reflect people's feelings, behavior and needs by attracting their attention (2019,boychenko) The interactive environment is a stream of information that constantly changes temporally and spatially, as it emphasizes the fluidity and flow between technology and matter as well, and the interactive space works to erase the boundaries between the object and the subject and the blending of vision and movement of the body, while the environment of interactive activity is modern technological interactive techniques (mahdalickova, 2009). In which a combination of technology and reality takes place to form this virtual environment, and in which the user can obtain information in addition to creativity, such as interaction activities in exhibitions, As for the behavior of the interactive space, according to combs & brown, it works more effectively when it conforms to social standards, transparency, the desire of users, and respects the right of the individual as one of the techniques of persuasion.

The University:

They are academic, scientific, and educational institutions that provide students with all that they need, present or future, of cognitive sciences, skills, and experiences, which enhances their interaction with their social environment, and ways to develop and advance them, in addition to its quest to transmit customs and heritage. The social intergenerational (Al-Hasnawi, 2009) or the sum of the various specializations of the colleges (Al-Mudhaffar, Shebaa, and Al-Asadi, 2010), and it is an independent, scientific, academic, educational institution, with an organizational structure different from the rest of the state institutions, since its main role is teaching, scientific research And community service, as it has an educational role, by building students and representing the country's political, social and educational policy, as it supplies the country with cards and cadres working on the advancement of the country (Al-Shammari, 2014) Social, economic, psychological (Al-Mudhaffar, Shebaa, and Al-Asadi, 2010). As for the function of the university educational institution, according to UNESCO (1970, Unesco) are: teaching and learning, scientific research, continuing education, building the human being by strengthening cultural, educational roles, Social (Alwan, 1988).

It is clear from the above, that the university is an educational institutional concept that has a close relationship with the community of students, teachers, and employees, working to build a complete human being, developing his capabilities and skills, and thus enhancing the role of the individual in developing and serving his community.

University environment:

It is a place to live, learn and work. It is concerned with activities and events of all kinds, social, cultural, humanitarian, in addition to other basic needs. It is part of the surrounding environment. The university environment has systems that work with each other, and they include:

- Physical environment: a system of buildings that may include classrooms, playgrounds, car parks, laboratories, and others.
- Educational environment: means educational activities and events.
- The social environment: It is the environment surrounding the educational aspects, and works to enhance and advance the social aspects (Al-Jumaili, 2012).

Therefore, the university environment is a polarizing environment for students and professors, so there must be renewal and attraction in it, as it is a dynamic environment It is rapidly changing, and it consists of physical, educational, and social systems that work together.



Picture (1) environment system/ source:(Al- Jumaili, 2012).

Campus:

It is a term given to the space that is designated for the university or college, which is all the green areas, closed and open squares, and student housing, which are within the limits of the university itself, and in which various student activities take place, in addition to communication skills, and cultural and social development, with the need to pay attention to the possibility of access, safety, social participation (yerli & ozdede, 2017) that the campus is not spaces left between buildings, but rather a series of places with values that represent the desire of the institution in which it is known, and there must be a sense of security, belonging, and encouraging social interaction and participation (Neuman, 2013), It is the physical environment that functions as a system of external spaces and buildings, and has a place in the collective memory of society, The universities were found to achieve goals in the form of groups, as follows (Yang, 2007)

- Knowledge goals: they are related to knowledge, human education and development, and interest in scientific research to provide services to the community.
- Economic goals: concerned with the economy of society, providing it with expertise and specialists in economic development, and creating links between the university and government institutions.
- Social goals: by providing the community with manpower and manpower, and training students in all social activities, interaction Social, spreading awareness and environmental research in knowing the public and private problems of society (Al-Muzaffar, Shebaa, and Al-Asadi, 2010)

Therefore, from the above, the university campus is all the outdoor, green spaces, and buildings, in addition to the services, that work to maintain the spaces and activities in them in a way that enhances the sense of place, a sense of safety, interaction and social participation, between the university community and its visitors.

Layout patterns of the campus: There are several types of campuses, which are:

- Central style: It consists of a central courtyard, around which are the educational departments, starting with a large area for central use and surrounding it Specialized laboratories, while general administrative activities such as the library, deanship of multiple departments, or college towers are concentrated in the corners of the central plaza, to demonstrate common academic goals and to help define professional spaces to emphasize department specificity so that public service departments appear based on the percentage of center use.
- The pivotal pattern: creating an educational, academic and social environment based on a continuous dynamic pivot that takes different forms accordingly For the topography of the place, the academic departments are grouped similarly to the fabric of the city. As for the main axis of movement, it extends to the departments and halls, and many secondary kinetic axes are branched from the main axis, so that the privacy of each group is reflected in the degree of physical proximity, while the center includes recreational activities (restaurants, markets) and ends with a distinctive knot or landmark (Sylvani, 1989)

- Linear pattern: It is in the form of an extended tape that includes all components of the university's academic, residential, services and others, and it is Easy to handle in case of future expansion.
- Molecular pattern: The academic departments and services are scattered and have wide distances for expansion purposes, and there are drawbacks to this the pattern, due to the distances between buildings and services, such as parking, restaurants and toilets, which must be present in each nucleus.
- Radial pattern: the expansion is around the center in the form of rings, The most prominent changes that can occur in the educational process, a change in the level or type of education or both, a change in activities, or in the relationships that link them, or the creation of activities, and a change in the form of education, so when such changes occur, the following must be taken into account when planning.

Adaptation: The base plan must be capable of containing emergency changes, and capable of adapting to later stage modifications (Tutt & Adler, 1979)

Flexibility: Flexibility depends on the discrepancy between the extent of flexibility and adjustment, if the adjustment is within certain economic limits, or complete disapproval, which can accept various changes, whether job or services (Al-Alwan, 1988).

From the above, it is clear that there are many schematic patterns on the university campus, with attention to the future expansion of each pattern, and more than one schematic pattern can be combined on the campus.

University Space Requirements and Components:

The location and area of the university determines since the beginning of the basic design of the city, or the development of its basic design, and that the best location for universities, is to be economically worth the land, away from the city center, with easy access to transportation, services, and the university's location in order to be integrated, it is necessary to Provides a number of specialized spaces:

- The scope of the academic teaching, research, and special studies departments.
- The scope of the sports departments, which are often located between the academic and residential departments.
- Residential scope, which includes housing for professors and university staff, and boarding departments.
- Recreational and commercial services area.
- Food area such as restaurants and cafeteria.
- The central service area includes the filling station, firefighting, warehouses, and workshops.
- Providing a network for university transportations that reaches all parts of the university and its specialized areas, with defining bus stops.
- Connecting the university with the surrounding environment, external roads, and providing public transportation gathering areas (Shaheen and Bashir, 1987)

Campus Kinetic System:

The kinetic system in the university is considered important planning and design, because many things ensue in the subsequent stages of implementation and expansion, and can be classified into:

- External movement: it connects the university lands to the public street line and defines the areas of external movement, parking lots, public and private vehicles, and the main and service entrances to the university campus.
- The main internal movement: It is the movement that connects all the departments and branches of the university building to ensure a safe means of transportation, and easy access to any desired section or branch is usually covered, with shaded areas for student movement and gathering to protect from bad weather outside such as hot summer or extreme cold Or

sandstorms or heavy rain, These corridors are usually used to connect engineering services between buildings through them, and the clearer and concise these lanes are, the more clearly we can get economic positivity.

- The secondary movement within the university departments and its branches: It is a movement that is independent of the main movements within it, usually, linking this movement All department spaces, from department and department heads to laboratory departments and dedicated research departments, related departmental studies, branch libraries and other spaces (Al-Baldawi, 2005)
- The pedestrian movement: the movement of students, teachers, visitors, and university employees, where access to academic departments is Within a period not exceeding (8-10 minutes), on foot, and does not exceed the limits of the individual's tolerance to walk, while separating it from the movement of cars, in addition to taking care of its roofing to protect from hot weather, and working to organize the movement of vehicles and vehicles and separate them, to achieve safety for both sides .
- Car movement: It includes the movement of cars towards the university, and the axis of car movement inside the university, which represents the axis Linear, and annular include car parks, attention to efficient car paths.
- The kinematic axis of the service mechanisms: which includes the movement of loading carts, and furniture, inside and outside the university.
- Public parking on campus (Sylvani, 1989)

As for movement considerations:

- Appropriate considerations: The movement should be proportional to the intensity, usage, and with clear features.
- Security considerations: It is possible to distinguish the public from the semi-public, and under the supervision of workers in the nearby buildings.
- Aesthetic considerations: distinguishing gates, axes and identifying their entrances, taking advantage of the variation in height due to the difference in the topography of the site (AlSylvani, 1989)

Planning considerations for the campus layout:

- Buildings: which represent the structure of the sanctuary, so it is necessary to choose the most appropriate location for them and take into account the neighborhoods.
- External spaces: They are considered the vital component of the campus.
- Auxiliary spaces: such as services and movement paths, which are integrated with the fabric of the campus, taking into account the movement of the pedestrians, and directing them to the entrances by corridors, in a clear style that is visually comfortable for the recipient.
- Creating common spaces to increase social interaction (Aeck, Sargent, & others, 2008)

Components of the university outer space:

The outer space of the university campus is divided into:

- The lower horizontal layer: It is the floor that includes all the buildings on the university campus, and it is a linking element between them, and it achieves The transfer process from one space to another, and meets the needs of the physical, functional, and environmental occupants of university spaces, and enhances the space and its industrial or natural components.
- The upper horizontal layer: It is the layer that is above the level of vision and represents the ceiling of space. It can be of varying heights To create a diverse space, as well as to create a distinctive ambiance for the space through shadow and light.

- Vertical layer: It is the borders and edges of space, which achieve privacy, hide defects if they exist in the space to give Positive feeling, directing movement and visual attraction towards a target, and they are of different sizes, proportions, and measurements.
- Space furniture: It includes all the components in the space such as seats, lighting, partitions, and others.
- Man: Man plays the main role in space. Without his presence, space would be devoid of life signs and signs. Some studies, as a distinctive element, that the outer spaces deal with the human interaction with them, whether it is a single space or a group of spaces (Dober, 2000), according to Reuter's definition, the outer spaces are a series of designed places, that encourage social interaction, participation, and a sense of safety as and that George Hurrell⁵ states that "it shows the best, hides the worst, and leaves things to the imagination." (Dober, 2000)

Open spaces on campus:

The open spaces are not only part of the campus, but also contribute to social interaction, and students stay in them for a longer period, so a number of important elements must be available for them:

- The cultivated spaces, integrated with the campus structure, are thus inspiring in the university's atmosphere.
- Allocating a space for works, artistic or monumental, commensurate with the function of the place in which they are located, while providing fountains to increase the aesthetics.
- Create a friendly environment for walking and encourage walking inside the campus, by separating the movement of pedestrians from cars, and allocating paths. For the movement of pedestrians and bicycles, covering and shading the footpaths of outdoor spaces, providing signs for the marking points for the purpose of guidance (Aeck, Sargent, & other, 2008).
- Providing furniture for the outer space, such as sitting places, preferably simple design, unified for all sections, and with high durability.
- Paving the corridors of pedestrian, which contributes to the formation of a visual rhythm in the university, through paving with appropriate materials and warm colors. Gradient indicating movement, which gives a sense of limiting and shortening the distance (Aeck, Sargent, & other, 2008).

From the foregoing, it is evident that the planning of the external spaces is represented by green spaces, sculpture works, encouraging walking, seating space, and paving corridors.

The fluidity and flexibility of university planning:

They are the changes that may occur in a manner commensurate with the new changing conditions, and that the work of the space or facility must continue, and that its requirements have changed through reconfiguration to suit the new variables, and two types of planning flexibility can be classified:

- Internal flexibility: a change in the function or shape of space.
- External flexibility: it is adding a building to the original building for the purpose of expansion or creating new functions, it is not enough inside the building to contain them, or change the external shape without compromising the internal space, to develop it from an aesthetic, social and other point of view (Tanous, 2013)

Planning must be streamlined and flexible because of the changes that occur and that are inevitable, and requires an assessment of the current environment, with data collection about what can happen in the future depending on development, trends and

⁵ George Edward Hurrell, cinematographer who helped create the Hollywood picture of the 1930s and 1940s
Enrollment in local colleges, 2005

need later, and that the change may be due to the increase in the number of students accepted in universities, which requires an increase assimilation to them (Neuman, 2013)

Sustainable Campus: The principles of campus sustainability, as outlined by the International Sustainability Network, are as follows:

- Planning buildings and spaces: it is necessary that all departments and colleges of the university are interconnected with each other and with the external environment, which surrounds it, with an interest in sustainability, being an important part of the campus.
- Type of design: The quality of the design must be high.
- Education: Promote learning and environmental awareness of space users.
- Engagement: sustainability on campus, through the work of the university community.
- Resources management: The consumables, construction materials, must include sustainability.
- The cost of the life cycle of the buildings: The cost of the buildings and their life cycle have the importance of investing in the campus.
- Climate change and its management: The changes must be managed in a way that achieves sustainable development in the university space.
- Maintenance and Remediation: The efficiency of treatments and maintenance to achieve sustainability on the university campus.
- Control and monitoring: by knowing and clarifying the results, and the methods of evaluating

The indicators: Table No. (1)

key vocabulary	Secondary vocabulary	the verified aspect
Planning considerations	flexible planning	- A forward-looking view of the future - A plan of land uses with future probabilistic functions - The fluidity of places, relationships, people - Free flowing borders, photo montage creation fluidity means the availability of alternatives to the reality of the situation
	spatial configuration	Schematic pattern (central, radial, grid, linear)
	shape and organization	Dividing the site into various domains of use (academic, administrative, residential, service)
	Location limits and accessibility	The university as an educational institution open to society and aspiration
space considerations	characteristics of a fluid space	- An open space characterized by unity and diversity, dynamic and lively - Human flow with constant change - Flexible space, a platform for work and human interaction

			- Create a new space based on relationships
	Relationships between spaces	fluidity	- Relationships and transformations to form flows between space - fluidity spaces linking the public and private relations and check the cosmic harmony
		organizational	Integration and clarity of the network linking all spaces (general or private -part or all- inside or outside)
		social	Space gradation from public to private
		material	Fit the shape with the fabric
	space behavior		Complies with social standards, transparency, users' desire adapts, contain, space gradient
	space management		Diversity of use, either a path, activities, or use
Considerations Organization kinesthetic	kinematic pathways		- Smooth kinematic paths of pedestrian with a duration of not more than 10 minutes. - Smooth-running car lanes with private parking - Kinetic permeability with visual, physical, symbolic access - Limited entry to cars, except according to special badges for this the purpose
Environmental considerations	Natural factors		- Topographically consistent layout with the site, nature protection for a local on-site with h A lot of scarce resources - Protect green and open areas from encroaching on them with other activities
	Industrial agents		- Bodies and water channels, fountains, landscaping, shading, green cover - The relationship of green areas with buildings and free uses back - The use of environmental treatments such as central yards, sun breakers
social considerations and interactive entertainment	social considerations		- Central social events that engage students with All streams from different faculties of university, in addition to the availability University Housing. - Openness to the inside between university departments, and openness towards outside with the city - Integration between university buildings and services, and control at its outer limits

		- Diversity of activities in the campus (sports, entertainment, cultural)
Consideration permeability visual	Permeability and visual pleasure	- Flow and visual continuity created by the visual axes studied within the site - Interactive relationships between mass and space to create visual pleasure and a fluidity urban scene
Considerations& adaptation futuristic Flexibility& expansion	absorb change	The ability to absorb changes that occur with the passage of time at level: education, activities, education number of students

Part Two: Practical Application Reasons

Reasons for choosing the university:

- The university is a fluid, flexible, spacious and multi-changeable space, and it is an important part of the city, and it can be considered as a micro-community of it.
- Harmony and diversity of users: the university offers a harmonious sample of young people of the same age groups and cultures, trained and taught in scientific and human studies.
- Diversity of spaces and characteristics of the spatial system: The university offers a diverse urban environment that contains many design and planning values Choosing a practical

study site: The location of the University of Baghdad in Al-Jadriya was chosen for practical research purposes because it is the first Iraqi university with the integrative Campus Type, and because it contains differences, and because of its reasonable degree of diversity in functional variables, the research dealt with analyzing the changes that occurred according to multiple considerations, by strengthening the verified ones, and achieving the rest of the legal aspects.

About the University of Baghdad:

In 1958, a university was founded that includes a number of colleges and institutes, in one integrated place (<http://www.uobaghdad.edu.iq>, undated) and the world architecture was chosen⁶ Walter Gropius⁶ Director of TAC⁷, Campus Type Designed in a global style and became the first university, and it is the largest Universities of the Middle East, a beautiful site was chosen at the time in the Jadriya district in the southern corner of Baghdad, on a peninsula whose three sides (North, West and South) provide a unique position in relation to the city of Baghdad by the bypass of the Tigris River (Widmer, 2014), The area of the total site of the University of Baghdad is (3,250,000) thousand square meters, while the area of the current site

⁶ Walter Gropius: widely regarded as one of the pioneers of modern architecture and architecture, most notable of the 20th century and considered an outstanding architect and teacher, he is referred to as the famous. He is an architect of American origin. Gropius is famous for being the founder of the Bauhaus School of Design in Germany, and the Baghdad University project was his first in the Middle East. Source (<http://en.wikipedia.org/wiki/>, n.d.)

⁷ TAC: Architects Collaborative International, an American architectural firm founded by Walter Gropius and seven architects, TAC has had many successful projects and is highly respected by the group, with its wide range of designs, being one of the most prominent in post-war modernity. Source (https://en.wikipedia.org/wiki/The_Architects%27_Collaborative, n.d.)

of the University of Baghdad after taking part of it to Al-Nahrain University is (264,6229) thousand square meters, and the area of the central part inside the ring street is (411891) thousand square meters .



Picture (2) The website of the Presidency and Colleges of the University of Baghdad/Source: (Baghdad, 2018)

Picture (2) The website of the Presidency and Colleges of the University of Baghdad/Source: (Baghdad, 2018)

Application of the theoretical framework indicators: Through the indicators extracted from the theoretical framework in Table No. (1), which were extracted, they were applied to the practical study area as follows:

Planning Considerations:

The basic plan used in the university's Campus Type planning enjoys geographical independence from the city, which enhances the concept of the modern university, and provides all academic, social and residential facilities. The educational spaces are located in the center of the site, and beyond the university's annular path, the designer achieved communication between the unity and diversity of parts in the overall composition, And image constancy and contrast in the parts that make up the academic image, which consists on the one hand of the three faculties (engineering, sciences, humanities and public activities in the middle of the scale), on the other hand, there are residential areas in the form of sections around the academic fields, with the service and sports side of the Another aspect, and outside the annular path, and this together constitutes a distinguished complex with different generalities and peculiarities of unity and interaction and in all public and private fields, through the employment of movement axes and visual axes.

The plans of the university, show the architectural and planning orientation that was followed, where the nature of the paths with bends and torsions that connect the external spaces and buildings, as they expand in certain areas (corresponding with the nodes connected between the alleys within the traditional areas of the city), the fact that the main elements of the central courtyard are inspired by the heritage Traditional environmental, concept of containment by design and applied Planning through open courtyards with geometric shapes, containing students and creating interaction and social contact among them, and for the purpose of future expansion, the pattern of scattered centers has been applied, so that the expansion that may occur in any part of the university buildings does not affect the general shape of it, as well as the use of another pattern with the pattern The first (scattered centers) is the organic style, where it achieved flexibility and adaptation to the spaces and what contributes to the subsequent change of activities and events. A construction system with measurements that ensures high functional flexibility was adopted, with a construction network of dimensions (6 * 9 m), where it can be divided or multiplied. And as the general plan requires, as for student density, Gropius set three capacities for the site, which are (5000-8000-12000) students, with an increase of 10% for the capacity, bringing the total to 13,200 students. The university's planning is very similar to the city's planning, although there are some differences, at the level of function and future change, since university changes are frequent and fast-paced, the use of a mixture between the two organic patterns and the centers. The university's location has greatly contributed to creating a flexibility university planning that does not stand helpless in the face of future expansions, but rather welcomes them, in addition to achieving a captivating image of the campus characterized by clarity, creating free flowing borders and a distinctive formation of the university complex.

Land uses:

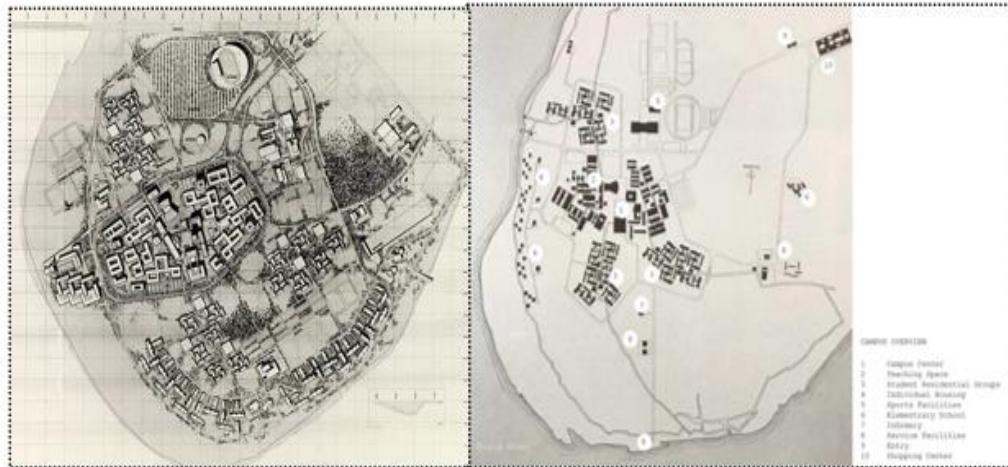
For land uses, Gropius used the concentric zones, which he divided into five zones:

- Academic: Its location is in the center of the university complex, to emphasize its privacy and distinction, and to achieve this goal, a ring street, a water canal, and a green belt of trees were surrounded, which gave independence to this area.
- Social and service: To achieve ease of access for everyone, and not to allow penetration of academic educational buildings, it was signed at the center of the academic sector.
- Residential: the specificity of the area with the presence of the ring street.
- Athlete: domain site is close to the entrance to the university, because it is a recreational area for the students themselves, and the possibility of making it a link between the university campus and the city's environment outside it, so that it can be easily used by the general public, without entering the university.
- Service: It means warehouses, maintenance, and others. It was isolated east of the site, with its signature on a network of service roads, for the possibility of providing services to all university facilities.

The division was also done on the level of student momentum and mobility into three sections:

- High Momentum Scope: It includes buildings with recreational and social activity.
- Momentum medium range: includes lecture halls.
- Low Momentum Range: It includes the laboratories area.

We find that a comprehensive method of spaces was used to organize the uses of the land, by giving privacy to the academic, social and residential aspects, sports and service, and used the density and momentum of students as the basis that it adopted in the functional system.



Pic (5) university plan

pic (6) zoning for land use

Source (Harkness)

Space considerations:

Through the university's plan, it is possible to observe the fluidity and flexibility of the relations between the external spaces, in addition to the containment, where the spaces move from the private and are represented by the courtyards of the internal departments, and the semi-private ones that are between the academic departments, and the public that connects the departments of each college with the social entertainment center represented by the central library, the center Students, and the university tower, as we find a smooth flow of space between the spaces and the nature of their privacy. As for the tracks, there was the same fluid flow pattern from the public street, and the semi-public represented by the ring street, which ends with the public

assembly space, then the private college space, and finally the inner courtyard for each department, it turns out that the fluidity and space flexibility of the university, in addition to creating a dynamic space that encourages students to meet and build relationships and social interaction between them.

Movement organization considerations: The movement within the University of Baghdad is classified into two types:

- The pedestrian movement: It is divided into two main types, which connect all the main areas together, and a secondary one that connects the academic side with the main spaces close to it, by means of kinetic paths that gather when all areas meet with each other, to be the main university space, as for the secondary pedestrian paths, they are within each scope of the university. It is crooked and expands at its ends to be secondary spaces between the academic departments, and the design took into account that the travel time between the academic department and its surroundings does not exceed 10 minutes.
- Car movement: It includes the main path from the university gate, with its curved, distinctive shape, passing through the mosque and the tower, where it determines the movement of cars through its annular path, and ends with car parks. To reduce the entry of cars to the campus, and to rely on public transportation in the campus, there are buses that serve to deliver students during working hours, and their transportation is in the ring street, while the car parks are in the vicinity of the main ring street and the main square, so we notice a great flow of movement and movement, as the system The movement achieved at the university is clear and provides safety by separating the movement of cars and pedestrians, isolating car parks from buildings for environmental protection, and achieving visual pleasure through the diversity of the scene through motor movement between the university, which provides enjoyment of roaming in it.



picture (7) showing the route of transporting students to campus cars and parking stations. /Source: (<https://uobaghdad.edu.iq>, undated)

Picture (8) shows plans for the university showing the main and secondary roads and car parks - the central part / source (Ramadan and Hassan, 2018)

Environmental Considerations:

Attention was paid to the environmental factor due to the distinctiveness of the site, as it took advantage of its features and its unique environment with a view of the river by providing the site with ponds, streams and fountains, to soften the atmosphere, and parking lots were kept away from school buildings for the dimensions of noise, and attention to creating shadows through sun breakers and afforestation and studying the space left between Buildings to equalize the solar energy falling on the erected buildings, from the foregoing it is clear how the privacy of the site was employed by the university's planning, and the use of treatments that would soften the atmosphere and provide shades, such as landscaping, streams, fountains, ponds, sun breakers, the pattern of compact buildings with courtyards, and keeping noise sources such as cars away from academic events.

Social Considerations:

Universities are considered the best representative of the social and academic aspects, where there are central social activities (restaurants, student center, central library, exhibitions) that work on the smooth interaction of students from the various faculties of the university, with the exception of the mosque, which represents the social and spiritual aspect, which is right at the neighboring Al-Nahrain University, and housing Its proportion is not large, since the northern part of the site, which was intended for housing and was annexed to Al-Nahrain University, decreased, as for the open, green and recreational spaces, they are available and aesthetically encourage social interaction, and the occurrence of reduction in a number of service and housing activities, as a result of taking the northern part (includes student housing Al-Jami') to create another university, Al-Nahrain University.

Optical Transmittance Considerations:

The university has two visual axes, the first starts from the university gate with its open arch, which symbolizes the openness of the mind, and ends with the dome of the mosque, which symbolizes the spiritual aspect, which later became within the ownership of Al-Nahrain University, in line with the designer's philosophical idea of creating a link between the mind and the soul. As for the other visual axis, which It starts from the end of the first axis to the direction of the university tower, as the tower represents a focal point for determining the direction of the movement paths, as well as a point of attracting the attention of the traveler inside the university, in addition to providing visual communication through the relationship of mass and space and manipulating its heights to achieve shadow and light, which achieves visual pleasure It also visually linked the river facade with buildings and open spaces, achieving a visual unity of the urban scene of the university, and a clear spatial diversity of the mobile in The campus, the balance was in all the elements, and between the parts of the site visually through linking and visual axes between the components of the campus, whether, at the level of kinetic axes, which create visual axes, or at the level of blocks and spaces and the contrast between their heights to create shadows and light and to achieve a distinct urban scene and proportionate with river frontage.

Flexibility, Adaptation and Future Expansion Considerations:

In the twentieth century, specifically the last two decades of it, many changes occurred for the university, including the abolition of all internal departments in 1989, and its buildings were taken as academic buildings, centers and research institutes, and then a decision was issued by the Presidency of the State to include the colleges of Al-Nahrain University (formerly Saddam University) to the northern part of the university site, So large areas were taken from the University of Baghdad and the female students' housing buildings, in favor of the requirements and departments of Al-Nahrain University, which in turn developed many colleges to keep pace with scientific development, and this contributed to changing the basic designs of the University of Baghdad and distorting its picturesque image, and the uses of many buildings have been changed, such as the tower that was originally Offices for professors, and now the university's general administration. The buildings designated for student housing located outside the ring road have become centers for graduate studies and research institutes as for the mosque, which is distinguished by its dome and shape, the right is within the lands of Al-Nahrain University.

The advisory office sought to rework the basic design of the university until 2030, with possible future expansions, and to secure new locations for centers and research institutes, in order to restore the function of the buildings occupied by these centers and institutes to their function of housing students and receiving more than seven thousand students. The expansion study included The addition of buildings that were implemented or under implementation, such as the expansions of the departments of the Faculty of Engineering and the Faculty of Science, for which a dean was built, and the departments of astronomy and biotechnology were added in 2014, and the completion of the media building, whose construction had been stopped after the events of 2003, and later suggested, the transfer of other faculties inside the site Jadiriya, such as fine arts and literature, a redistribution of a number of faculties that took positions within the second ring street, such as sciences for girls, laboratories, stores and workshops, locating sites with appropriate dimensions for the faculties of agriculture and veterinary medicine, after the decision to transfer them to Jadiriya, taking into account the large spaces for practical study , that university With its fluidity planning and the flexibility of the design that was developed more than seventy years ago, it is

adaptable to the developments and changes of time in terms of increasing numbers or momentum of relationships or activities, which makes when making more effort in its management and planning in making it one of the best Arab universities.

Part Three: Conclusions

- The university is the most vulnerable environment for change, due to continuous changes at all scientific, academic, and social levels, so it is necessary to develop flexible flow planning, characterized by flowing spaces and dynamic systems, to maintain the dynamism of university life accelerating and keeping pace with development, in addition to avoiding what may happen from Possible excesses of its future planning.
- Attention to setting a level of space relations between parts of the university, as these relations determine the space behavior of university spaces, and their compatibility with standards for users, and social interaction, and thus how to manage space in the best way.
- Preparing comprehensive studies concerned with urgent and emerging matters facing the university environment, in order for the university's advisory team to keep pace with these changes, and work to update its basic planning, in a way that does not affect the existing and achieves a balance with it.

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