

Flexible Furniture Design And It's Reflection On The Interior Spaces (Turkish University Dormitory As A Model)

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Abstract

Furniture is an integral and inseparable element of the interior architecture, and its design depends on its function and the space. The various forms of the flexible furniture that adapt to the interior design of the building through the multiplicity of its functions, which can be converted from one form to another and from one function to another that suits the design and its various forms. The researchers have looked up many student room designs in Turkish university dormitories. Innovation has a role in the design of the flexible furniture and its relationship to internal spaces. So, the research problem is: What is the innovation and what the role does it play in the design of flexible furniture? While the significant of this study is: it seeks to highlight the innovative, functional and aesthetic aspect of flexible furniture and its reflection on the interior spaces of student rooms in the university. While the objective of the research study is to identify the innovative capabilities in the design of flexible furniture that contribute to clarifying practical solutions that suit the user. Its spatial and temporal limits also included the internal spaces represented by student rooms in the university dormitories of Turkish universities 2021, then the researchers dealt with the theoretical framework, and then the researchers dealt with the research procedures to reach the results, that one of them : The design structure emerged with all the external and esoteric relationships of the design structures formed according to a container of phenotypic qualities that it was achieved (100%) for the first and second models, in addition to being a carrier of aesthetic values, which was achieved (100%) for the first model, while it was achieved by (50%) for the second model. While one of the conclusions was: the dynamics of the university housing for students showed that it requires a flexible design because it contributes greatly to providing more design in the interior spaces that contribute to the flow and flexibility of the design, as well as the formation of flexible furniture units with innovative and dynamic designs, including folding and multi-purposes and multifunctional furniture.

Keywords: innovation, furniture, flexibility.

Introduction.

The world has changed many times over the years, and each era has a distinctive character in construction that is reflected in one way or another on the interior design and the design of furniture for the house in general and the student rooms in the dormitory in (Turkish universities) in particular, we find that the interior design includes the study of spaces and spaces and that Furniture is one of the complementary units of the interior design that

expresses the identity of the space, in addition to this, it is the development of appropriate solutions for the elements that make up the design unit, so that the interior design performs its function with high efficiency, using different materials, and at a good cost, and all of this changes according to each stage of time. As the interior design is the fertile field in which we monitor the spaciousness of the design experience.

Therefore, it is imperative that we reveal innovative solutions and creative aspects of furniture in design to create a safe design for individuals and collectibles within the space.

1-1 The study's problem: What is architectural innovation and what role does it play in the design of flexible furniture?

1-2 The significant of the study: To highlight the innovative, functional and aesthetic aspect of flexible furniture and its reflection on the interior spaces of university dormitories in Turkish universities.

1-3 the aim of the study: to identify the innovative capabilities in the design of flexible furniture that contribute to clarifying practical solutions that suit the user in the interior spaces of student rooms in the university housing of Turkish universities.

1-4 The limitation of the study:

1- innovation in the design of flexible furniture and its reflection on the interior spaces.

2- Internal spaces and furniture of university dormitories for students of Turkish universities.

3- The designs are available since 2003_ 2016.

1-5 Define the terms:

1- Innovation: the innovation is a thought, behavior or thing that is new and because it differs qualitatively from the existing forms, and it is also the observation and generation of new ideas through the availability of different points of view and coordination of the actions necessary to implement these ideas and translate them into innovations¹.

2- Furniture: All fixed, movable and transportable needs that benefit the person in his home, workplaces and public places and meet his daily needs, comfort and safety of his possessions, as it is one of the applied arts. It is one of the most important elements of interior

design, which begins with design and ends with the product, which contributes to strengthening human activity².

3- Flexibility: It means the ability to respond to changing needs and requirements from time to time so that understand the change and renewal on the possibility of reconfiguring in an orderly manner to choose the best option that helps to find flexible and modern solutions that meet the needs.³

theoretical framework of the study.

2-1 Innovation and its impact on the formation of the design body: -

Innovation is not something beyond the reach of individuals, as the difference between innovators and creators on the one hand and ordinary individuals on the other hand is that their innovations and creations are subjects that have a great impact on the lives of individuals, and thus there is more regularity for them as the basic philosophy of innovation and creativity depends on the idea that all individuals They possess all innovative and creative abilities and traits, but these abilities and traits vary in degrees from one individual to another⁴.

Lawson presents his initial view through designers' thinking through design, which has general implications for everyday use and more specific ones in specialized fields of knowledge such as industrial design, furniture design, fashion design, engineering design, architectural and interior design, and others. The degree of difference in design from one to another appears due to and not because of the word "my design" and looking at the design problem in different ways, and that's why the focus was on naming more than he is, and despite the fact that his study was directed because he did not understand the problem in terms of because he did not propose his

way, it became from the design and that the assistants for the design according to his expression.⁵

While researchers in defining design start from the state of the design problem itself, others start their definitions of it from the design task as effectiveness, that is, their definitions focus on the direction of design performance, while others focus on the designer or the designer in the design process, and in any way in understanding the design proceeds From understanding its procedures and ways to achieve it, then understanding the approach that it adopts is provided to deal with it.⁶

2-1-1 Creative imaginative planning and the product of the design idea: -

Scholars in this field have tried to find a kind of relationship between the planning acts performed by the mind and between the production processes in the design, and since in the design process there is a mixture of mental actions that often start non-recurring and do not work according to a unified mechanism, the difficulty lies in finding an example These correlations are for each stage of production, and despite the fact that the thinking model presented by most studies is complete on the basis of the known stages, and there is no clear separation between each of them, it was the main factor in increasing the difficulty of finding such connections.⁷

Zeisel explained that the design process includes the overlap of three thought patterns represented in imagination, presentation and testing of two types of information. It is information that stimulates the imagination with a body of knowledge for investigation and runs in a spiral shape that represents the progress of the design act and is through a series of matching concepts with creative transitions and deepening in it the responsibility of the designer according progression of the task.⁸

The process of constructing by virtue of imagination and synthesizing the vocabulary of the imaginative sense is nothing but analysis and installation in the circle of thought and perception. This process of analysis and synthesis is necessary for any human knowledge production, and the structure of this product is formed from the simplest to the most specialized and complex. Every constructive act is above all an act of destruction. The two verbs are described as a standard method by which thought analyzes and fragments a subject, form or issue into its building elements and then re-combines them with new formulas and foundations.

The fact that this process is clear in the arts in general and formation in particular, from ancient to contemporary.⁹) (see Figure) (1)

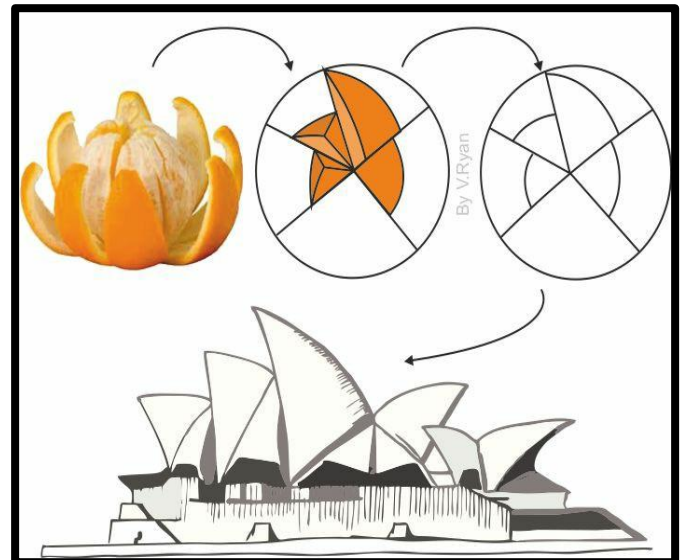


Figure (1)¹⁰ the progress of the design act through imagination, presentation and testing

2-1-2 Flexible furniture as an innovative product for interior spaces with limited space:

Furniture is the main factor in the design of the interior spaces of the university dormitory. Without it, the elements of the interior design of the university

dormitory design are never complete. It is the mediator between architecture as a building and the students who use it. Furniture transports us in shape and scale between the interior design and people, and furniture has developed significantly as a result of industrial development, and as a result of This development has developed in the furniture industry for the interior spaces and with regard to the spaces of the university dormitory, because the design of the design is small and it is used more than effectively at the same time and for more than one person, and in different shapes and designs and in a specialized manner according to the type of design and design required, for example, bedroom furniture at home began to express technological development And about the high level of innovative ability, whether in materials or in shape as well as space, and therefore furniture has received great attention by interior furniture designers because of its meeting the needs of the individual as well as being influencing his comfort, the design is linked to the visual composition of the interior design and plays through its shape Its lines, scale, colors and compositions play a very important role in giving the expressive qualities and characteristics of the interior space.

Where the idea of flexible furniture with multiple uses and functions came to meet the desires of the individuals who use it in addition to providing their needs in small or limited spaces. The crisis of crowding of objects in one place, which affects in one way or another the psychology of the university dormitory members, as well as providing them with all means of comfort. We find that one of the desired goals of the multi-use built-in furniture is to provide the possibility of enjoying living in a limited and small space. We find that most pieces of flexible furniture can be used in more than one function. We find that some pieces of flexible furniture are dynamically capable of switching from one job to another.

It may be a sofa during the day and a bed at night, or it may be an aesthetic part of the wall during the day and a bed at night, and other pieces that are a chair, a small desk, or a table when needed, and after completion, it is

raised on the wall as part of it, as the multi-use built-in furniture shows the cleverness and ingenuity of the designer. , as the piece of furniture has two functions at least and sometimes more, and sometimes it is limited to speed and ease of storage, where flexible furniture is used in general for the whole family or for furniture prepared for guests only, in proportion to the available space.¹¹ (see Figure) (12)



Figure (2) :Multiuse and Multifunctional Flexible Furniture¹²

2-1-2-1 The dynamic of the dormitory and its relationship to flexible furniture:

It is described as the design vision in light of the diverse rhythms of nature, which is concerned with the sustainability and continuity of the work of the dwelling. It is based on the dynamic movement of instability, to support the performance of the housing function in all ways that suit the development resulting from the information revolution reflected on the design, whether in materials or interior spaces, in order to meet the needs and comfort of users, as well as meet the emerging needs of individuals over time.

The level of success of the design process is related to the designer's awareness and degree of understanding and understanding of the needs of individuals in the design of the housing unit, and because furniture is what

contributes greatly to the formation of furniture units. Contribute to the design streamline and flexibility.¹³

Flexible furniture design is an integral part of a dynamic home. Most of the building designs from the inside are traditionally designed to suit the average user, who puts them to continue with this design in the future, and when the unit members increase, they have no opportunity or alternative but to change the housing unit, as well as the furniture. Traditionally, it is difficult for him to try to adapt to this increase, which causes him to be a financial and moral burden. If this dwelling contains flexible furniture, the users of the unit will not feel this trouble.

Flexible furniture will contribute to increasing the interior design in an advanced and interactive manner. Flexibility is the main tool that contributes to accommodating the future changes of the housing unit, so that individuals do not feel any tightness in the interior spaces and allow them to stay as long as possible in the same place without the need to move to another place. Here, the flexible furniture has contributed to the support of the internal design of the university dormitory in a large and flexible way, as the furniture design is directly related to the design of the internal spaces. For life, the development of the interior design is linked to all the elements of the interior space, whether walls, floors, or furniture in all its forms. Furniture is an integral part of the design.¹⁴ Where furniture has evolved in modern thought, and its forms have varied, so we find that furniture is smart, interactive, multi-purpose and built-in, but there are some pieces of furniture that carry more than one type. This is due to the development of the designer's thought and its alignment with modern design and modern technologies. The purpose of furniture dynamism is to make optimal use of the tools used in the recruitment of furniture and interior design according to the user's need to change the shape and use of furniture in more than one purpose by folding it or merging it and changing the function of the room or space, and working on Enhancing sensory dynamism as an alternative to

physical dynamism, by creating stability in the spaces of the rooms and reversing the change in the shape of furniture and its uses, so that furniture pieces can be designed with more than one function as an alternative to multiple traditional pieces of furniture.¹⁵ (See Figure) (3)



Figure (3) The dynamic of the dwelling and its relationship to flexible furniture¹⁶

2-1-2-2 Shorthand in Flexible Furniture Design:

Design is in fact a case of reductions, we design for the human being who, by nature, should be renewal and development, which are in fact a case of reductions to design elements from shape, color, material, texture, energy, movement. etc., and it is noted that the designer resorts to shorthand in the design of furniture used in limited spaces to express the contents of his idea related to design necessities and needs that are of importance to achieve a specific function, its role is crystallized through the form body that follows the function so as to confirm it as well as crystallize it, clarify it and make it realistic. Because of the variables and functional needs, which appear on the form by reduction so that it has an

effective effect in the embodiment of the design idea by achieving its goal through reductionist treatments.¹⁷

2-1-2-3 Condensation in the flexible furniture design.

Intensification is another design act adopted by the designer, as it represents one of the important uses in design, and it may be effective by studying the form and function of the internal design and its furniture for university housing, and condensation is based within the design area, being effective and a clear impact by studying the details of the job to be achieved in The design product, within the design space, and condensation is one of the technical variations that it uses as it is one of the stressful conditions within the design construction through two: -

First: (Studying a single design area to draw attention by studying the design of the illusion of movement, time, and design depth, as well as directional multiplicity and perspective processors, in addition to sequence, proportionality and optical illusion.

Second: The study of the coordinates with high contrasts and multi-valued color, through which condensation can be achieved through the multiple idea in style of the output and manifestation manifestations (color, space, texture ... etc.) and everything that is achieved through condensation as a verb is done with a diverse technical performance It shows all the above details and the results it entails that are within the goal of the comprehensive organizational plan for diversity in aesthetic values in order to achieve the function in the design.¹⁸

2-2 Characteristics of the aesthetic form of the design structures: -

The design structure is concerned with all the external and esoteric relationships of the design structures, which are formed according to a container of phenotypic qualities and bearers of aesthetic values that can be realized through the aesthetic sense of the design component, and this feeling is an unstable phenomenon,

especially in the process of attraction and its mechanism of operation.

They have a wide scope and are linked to determinants according to the viewer's point of view, as well as their association with intellectual trends, philosophical institutions and ideological movements. The phenotypical qualities represent the ability to give an appropriate evaluation of the design structures, which are fixed and latent in-kind qualities governed by a kind of relations, which give them a character of harmony and unity, and are embodied In those structures, for aesthetic needs based on motivation, to represent the sum of the internal and emotional interactions of the human being towards the achievement of any artistic work (as design structures that gather cultural, mental and psychological aspects), so experience, taste and aesthetic judgment are only stages or basics of phenotypic qualities within Design structures generated or composed of material aesthetic expressions, especially visual ones associated with (shape, light, color and texture).

Its aesthetic and symbolic expressions are connotations and conjugative meanings, which exist within the human environment associated with his memory, interacting with it and absorbing it, to give the structures of desing a sense of belonging to it.¹⁹

It is the relationships as forming structures, meaning that what the recipient perceives mentally is the similarity of the form with its structural character. Thus, what is conveyed to the recipient is not the artist's feeling, but rather the structure of the form through those relationships. For this reason, Langer sees that art is an evidence, and this structure is in fact stored in the mind, and we can express it through the accumulated experience in the mind of forms and their symmetries in relationships, as well as the priority of relationships in the perception of form because projecting them on form plays a role related to the aesthetic and organization of form through what it does.²⁰

2-3 The concept of ergonomics as a basic requirement in furniture design: -

Ergonomics is one of the exact applied sciences, as it depends mainly on accurate measurement and precise practical tools, in an accurate work that attempts to harmonize between knowledge derived from biological and human sciences, functions, products, practical environments, and human physiological and cognitive capabilities, where ergonomics mainly seeks to adapt work to the worker, in By doing so, it aims to bring the worker to the ideal professional level in terms of matching his work, abilities and skills with his performance, in addition to his health and safety while performing his work.²¹

Also, ergonomics studies another aspect, which is the aspect of anthropometric physical measurements. When designing any machine, device or piece of furniture used by a person in any work, it must be subject in a harmonious manner to the measurements of the human body, which requires knowledge of the standard specifications of the body and its muscular and sensory capabilities and susceptibility, i.e. a study of the so-called Anthropometric where the link between the standard dimensions of the machine and organizations and designs of work sites and areas, movement of workers, loading and segmentation of body positions while doing work in the work site²².

2-4 indicators of the theoretical framework of the study:

1- To create dynamism in the student housing design and its furniture requires a flexible design. The more the designer can develop furniture units with innovative and dynamic designs in folding and flexibility, the more he contributes to providing more design in the interior spaces that contribute to the flow and flexibility of the design, so we find that the furniture is smart, interactive, multi-purpose and flexible, but There are some pieces of furniture that carry more than one type, some of them are intelligent and interactive, multi-purpose, and some have only two characteristics or one attribute. The purpose of

furniture dynamics is to make optimal use of the tools used in the recruitment of furniture and the internal design of the university housing according to the user's need to change the shape and use of furniture in More than one object by folding or merging it and changing the function of the room or space.

- 2-** The changing design due to the change of life, its requirements and its philosophy depends mainly on the designer's ability to innovate and to exploit his culture in his artistic production with special techniques that deal with the interior spaces of the university housing, and that good design is a successful relationship between form and function, a relationship that creates the beauty that we perceive in art and the designer organizes relationships Between all of the material, tools and performance skills.
- 3-** The designer resorts to shorthand in the design of furniture used in limited spaces to express the contents of the idea related to the necessities and design needs that are from the functional need for space, to achieve a specific function whose role crystallizes through the form that follows the function and that (the design form is made up of a variety of forms and functions), as the Diversity is caused by the designer due to the variables and functional needs.
- 4-** Condensation is represented as a design act that is effective by studying the form and function of the interior design and its furnishings for university housing by studying the details of the function to be achieved in the design output.
- 5-** The design structure is concerned with the totality of the apparent and esoteric relationships of the design structures, which are formed according to the form of a container of phenotypic qualities and a carrier of aesthetic values that can be realized through the aesthetic sense of the design component and the aesthetic judgment. Of them and related to (shape, light, color, texture), meaning that what the recipient perceives mentally is the similarity of the form with its structural character.
- 6-** Ergonomics seeks to adapt the design and furniture to the person on the basis of the compatibility of the human

body scales, (the compatibility of the human scale with the internal environment, the compatibility of the human scale with the furniture used), which requires knowledge of the standard specifications of the body and its muscular and sensory capabilities and susceptibility.

Study procedures.

3.1 Research Methodology: -

Due to the nature of the research study, the researchers adopted the descriptive approach (content
Table (1) Research community

No.	The inner design of university dormitories	State	Date
1	Istanbul Aydin University	Turkey	2003
2	Istanbul Şehir University		2008
3	University of Alton bash		2008
4	Istanbul Medipol University		2009
5	Biruni University		2014
6	Istinye University		2016

2-3 Research Samples: -

The intentional (non-probabilistic) selective method was adopted for the sample represented by the original research community, to choose the models that serve the study objective and are closest to achieving it, which number (2) out of a total of (6) (student housing in Turkish universities), i.e. (33%) of the population The research, which was selected according to the following conditions and reasons:

1- The selected models have been thoughtfully designed to the level of their interior and architectural design.

Table (2) The research samples

No.	The inner design of	State	Date
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analysis) to identify (innovativeness and what role does it play in the design of flexible furniture?), relying primarily on the theoretical framework and the resulting indicators, leading to a comprehensive realization of the research objective. The research community also included the study of interior spaces and furniture design, which is represented by (interior spaces and furniture rooms for university students' rooms) in Turkish universities. Thus, the research community can be identified as follows: -

- 2- Selection of the sample based on the opinions of experts in the field of scientific and professional specialization.
- 3- Adopting diversity in choosing the geographical location of the submitted models.
- 4- Selection of the sample based on the effectiveness of the level of awareness of the elected models based on the design ability, including the taste of the levels of spatial reality based on the formative formulation, according to the design parameters.
- 5- The urban and design development witnessed by university housing for students in Turkish universities.

university dormitories

1	Istanbul Aydin University	Turkey	2003
2	Alton bash University		2008

Fig. (4)²³Fig (5)²⁴

Pictures show the interior design of the university dormitory at (Tinbash University)

Fig. (6)²⁵Fig. (7)²⁶

Pictures show the interior design of the university dormitory at (Istanbul Eden University)

3-3 Research Tool Validity:

To confirm the validity and comprehensiveness of the analysis tool, the validity of the used tool was verified by discussing it with experts, then the analysis axes form was presented to a group of experts to express their opinions about its validity in the light of their sound scientific observations, and thus this form gained its apparent validity for the purposes of applying the analysis in this research , due to its comprehensiveness of its paragraphs and its validity in determining the research objective.

The stability of the research tool is also a prerequisite for the method of content analysis, so the researchers adopted the method of consistency between analysts, which means that analysts individually reach close results when analyzing the same model according to the rules and steps of the analysis if external analysts who have experience in the field of interior design and

furniture design are selected. After the analysis, Cooper's equation was used to determine the percentage of agreement by calculating the reliability coefficient between the analysis of the two researchers and the external analysts. The average reliability coefficient was as follows:

Table (3) Stability Coefficient Ratio

The stability ratio between the first analyst and the two researchers	The stability ratio between the second analyst and the two researchers	The stability ratio between the first and second analyzers	Stability Ratio
78%	84,5%	81,25%	81,25%

Thus, the average stability coefficient between the first and second analysts and the researchers reached 81.25%, which is a very good percentage that can be relied upon, which prompted the researchers to analyze the second model.

4-1 results:

- 1- Emphasis on creating the dynamism of university housing for students and its relationship to furniture for its significant contribution to the formation of flexible furniture units and with innovative and dynamic designs, including folding, which were not achieved (0%) for the first and second models, while we find that multi-purpose and multifunctional furniture has been achieved by (50%) for the first model While (0%) was not achieved for the second model.
- 2- The design structure emerged with all the external and esoteric relationships of the design structures formed according to a container of phenotypic qualities that it was achieved (100%) for the first and second models, in addition to being a carrier of aesthetic values, which was achieved (100%) for the first model, while it was achieved by (50%) for the second model.

- 3- Ergonomics also seeks to adapt the interior design and furniture with the human being on the basis of the compatibility of the measurements of the human body through the compatibility of the internal environment with the human scale, which was achieved (100%) for the first and second models, in addition to the compatibility of the furniture used with the human scale, which was achieved (100%). also for the first and second models.
- 4- The designer considered that the changing design due to the change of life, its requirements and its philosophy depends on the design process, which basically expresses the designer's ability to innovate and to exploit his culture in his artistic production with special techniques that deal with the interior spaces of the university housing, and that good design is a successful relationship between form and function where it was achieved (100%) in the first model, while it was achieved by (50%) in the second model, and a relationship that creates the beauty that we perceive in art, and the designer organizes the relationships between each of the materials, tools and performance skills, which were achieved (100%) for the first and second models.

- 5- Intensification as a design act is effective by studying the form and function of the interior design and its furniture for university housing by studying the details of the function to be achieved in the design output, which was achieved by (50%) in the first model, while it was not achieved in the second model, ie, at a rate of (0 %).
- 6- Emphasis on the reduction in the design of furniture used in limited spaces to express the contents of the idea related to design necessities and needs that are from the functional need for space, to achieve a specific function, which was achieved by (50%) in both models and whose role crystallizes through the form that follows the function and that (The design structure is made up of a variety of shapes and functions), as the diversity is brought about by the designer due to the variables and functional needs.

4-2 Conclusions:

- 1- The designers took into account that the changeable design due to the change of life, its requirements and its philosophy depends on the design process, which basically expresses the designer's ability to innovate and to exploit his culture in his artistic production with special techniques that deal with the interior spaces of the university housing, and the good design is a successful relationship between form and function. , and a relationship that creates the beauty that we perceive in art, and the designer organizes the relationships between each of the materials, tools and performing skills.
- 2- The dynamics of the university housing for students showed that it requires a flexible design because it contributes greatly to providing more design in the interior spaces that contribute to the flow and flexibility of the design, as well as the formation of flexible furniture units with innovative and dynamic designs, including folding and multi-purposes and multifunctional furniture.
- 3- Relying on the design structure with all the apparent and esoteric relationships of the design structures, which are formed according to a container of phenotypic qualities in addition to being a carrier of aesthetic values.
- 4- One of the components of interior design and furniture is reduction, as it expresses the contents of the idea related to the necessities and design needs, to achieve a specific function.
- 5- Adoption: Ergonomics seeks to adapt the design and furniture to the person on the basis of the compatibility of the measurements of the human body, (the compatibility of the human scale with the internal environment, the compatibility of the human scale with the furniture used).
- 6- Because condensation is a design act that is effective by studying the form and function of the interior design and its furnishings for university housing, by studying the details of the function to be achieved in the design output.

Annex No. (1) The Analysis Form the First Form (University Dormitory at Istanbul Eden University)

NO.	Sub-theme titles	Paragraphs of secondary axes	complete	Relatively complete	incomplete
1-	The dynamics of university housing and its relationship to furniture contribute significantly to the formation of (flexible) furniture units.	foldable furniture		✓	✓
		Multifunctional furniture pieces			

2-	The design structure is concerned with the totality of the external and internal relations of the design structures, which are formed according to a body	A container for phenotypic traits	✓	
		bearer of aesthetic values	✓	
3-	Ergonomics seeks to adapt the person to his surroundings and the success of his dealings with the interior environment and furniture on the basis of compatibility with the standards of the human body	The compatibility of the internal environment with the human scale	✓	
		The compatibility of the furniture used with the human scale	✓	
4-	The design process depends mainly on the designer's ability to innovate and to exploit his culture in his artistic production with special techniques that deal with spaces.	A successful relationship between form and function	✓	
		Regulating the relationships between materials, tools, and performance skills		
5-	The designer resorts to shorthand to express the contents of his idea related to design necessities and needs to achieve a specific function			✓
6-	Condensation is represented as a design act that is effective by studying the form and function of the interior design and its furniture			✓

Annex No. (2) The Analysis Form Second Form (University Housing at Al-Ton Bash University)

NO.	Sub-theme titles	Paragraphs of secondary axes	complete	Relatively complete	incomplete
1-	The dynamics of university housing and its relationship to furniture contribute significantly to the formation of (flexible) furniture units.	foldable furniture			✓
		Multifunctional furniture pieces			✓

2-	The design structure is concerned with the totality of the external and internal relations of the design structures, which are formed according to a body	A container for phenotypic traits	✓	bearer of aesthetic values	✓
3-	Ergonomics seeks to adapt the person to his surroundings and the success of his dealings with the interior environment and furniture on the basis of compatibility with the standards of the human body	The compatibility of the internal environment with the human scale	✓	The compatibility of the furniture used with the human scale	✓
4-	The design process depends mainly on the designer's ability to innovate and to exploit his culture in his artistic production with special techniques that deal with spaces.	A successful relationship between form and function	✓	Regulating the relationships between materials, tools, and performance skills	✓
5-	The designer resorts to shorthand to express the contents of his idea related to design necessities and needs to achieve a specific function				✓
6-	Condensation is represented as a design act that is effective by studying the form and function of the interior design and its furniture				✓

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