

Understanding of Heritage Values within University Education Systems in the Kingdom of Saudi Arabia

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Abstract—Despite the importance of the role and efforts made by the universities of the Kingdom of Saudi Arabia in reviving and preserving heritage architecture as an important cultural heritage in the Kingdom, The idea revolves around restoration and conservation processes and neglects the architectural heritage values, whose content can be used in sustainable contemporary architectural works. Educational values based on heritage architecture and how to integrate with the contemporary requirements were investigated in this research. For this purpose, by understanding the heritage architectural values as well as educational, academic process, the researcher presented an educational model of questionnaire forms for architecture students and the staff at the Architecture Department at Al-Baha University as a case study that serves the aims of the research. The results of the research show that heritage values especially those interview results are considered as a positive indicator of the importance of these values. The students and the staff need both to gain an understanding of heritage values as well as an understanding of theories of incorporating those values into the design process of contemporary local architecture. The research concludes that a correct understanding of the heritage values, its performance, and its reintegration with modern architecture technology should be focused on architectural education.

Keywords—Heritage architecture, academic work, heritage values, sustainable contemporary local architectural.

I. INTRODUCTION

HERITAGE architecture, including its material and moral components, is considered a true cultural vision that reflects prosperity and biological development. It is a series of experiences and accumulated experiences values that respect the environmental, cultural, social, aesthetic and political requirements [2].

It does not make sense for the architectural concept, especially educational concept, is separate from those values that express the spirit of the age. That concept associated with architectural heritage is merely a formal or abstract link. Rather, this concept should be linked to a realistic understanding of these values, and it should always be linked to the spirit of the place and the variable and renewable data of time, and to interact with the overall material and moral influences affecting the design process.

The goal in design is to produce a process with a heritage dimension that respects the values, additionally all new requirements of the times [3].

The research problem in this paper focuses on the study programs in Saudi universities that deal with the issue of

architectural heritage in terms of conservation and restoration more than aspects of content and values as well as integrating them in contemporary architecture requirements, according to intellectual trends and architectural schools that adopt the ideas of revival and the abstraction of architectural vocabulary. The research looks for a realistic curriculum in university education programs where cultural awareness must be taken into account. The values of heritage must also increase between students and architects. Heritage must be fostered in the spirit of the age to take advantage of design thinking and create architectural models based on creative standards and design.

Accordingly, the main objective of the research lies in identifying the importance of heritage values and focusing on them in educational curricula in scientific universities and clarifying the possibility of reviving those values in contemporary local architecture using means, ideas and techniques of the times. This goal can be achieved through the following goals:

- 1) An analytical study to revive the heritage architectural models with different orientations taught to students of architecture
- 2) An analytical study of the theoretical values and their relationship to postmodern conditions and the most important cultural changes and their relationship to modern architectural trends.
- 3) A questionnaire study for a specific research community of academic architects and architecture students to find results and opinions specific to the research problem.

The current study has adopted the descriptive analytical inductive approach to reach the appropriate solutions and results through a gradient from the theoretical approach to studies on personal interviews and questionnaire forms

II. GENERAL VALUES IN THE HERITAGE ARCHITECTURE

Values are the main pillar in the cultural construction of civilized societies, and they are the criteria and determinants of individuals' behavior towards each other, where it was agreed to accept commitment to these values by society [4].

Architectural heritage values are shaped by society's relationship to that heritage, If society does not appreciate heritage values, it becomes useless and without importance, and the value of the architectural heritage is a set of qualities that make it worthy of consideration, They are the criteria and determinants that govern individuals' behavior towards each other. Therefore, it is necessary to be aware of the values inherent in the heritage elements in order to be able to employ them consciously to ensure the continuation of their life [1].

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The architectural values of heritage can be classified as follows:

- 1) Religious value: It expresses social and cultural beliefs and relationships whose source is Islamic thought and belief.
- 2) Emotional value: It expresses human interactions with plastic features and architectural content of architectural heritage.
- 3) Functional value: It expresses its design patterns that achieve its function and take into account the environmental conditions.
- 4) Social value: It expresses architectural patterns that achieve social progress for individuals and society.
- 5) Economic value: It reflects on the high performance of heritage buildings as a result of simplicity in composition and construction.
- 6) Cultural value: It expresses personality and identity linked to historical, archaeological, social and archaeological dimensions.
- 7) Educational value: It contributes to the development of sciences, including archaeology, architecture, engineering, anthropology etc.
- 8) Aesthetic value: It reflects human interactions towards creativity.

These values have had a major impact on heritage buildings, so by studying these values and their applicability to contemporary reality, a set of urban planning and design axes has been developed and discussed as in Fig. 1. These axes produced the values to determine the positive proportions affecting the design process and that can be applied in the contemporary local architecture, and they are divided as follows:

Urban axes such as:

- Choose the right location and relationship with the environment.
- Use compact fabric and superposed structural formations in contemporary solutions.
- Use planning solutions appropriate to climatic conditions.
- Use stepped street networks used in planning the heritage villages.
- Design façades and cover the streets with parts of the buildings, as well as plan the traditional villages.
- Design open squares and courtyards in the urban fabric
- Achieve religious requirements in urban planning
- Achieve healthy and psychological aspects of planning

Design axes such as:

- Consider religious social values in design.
- Consider privacy in the design process.
- Achieve the functional aspect of the design process.
- Use heritage treatments that are appropriate for the surrounding environment.
- Achieve aesthetic values.
- Use heritage symbols and vocabulary in designing contemporary buildings.
- Keep pace with contemporary developments in the building process.

- Take into account the design of interior spaces in buildings and their relationship to each other.

III. CIVILIAN VARIABLES

Political and civilization changes with the advancement of technology and the emergence of contemporary scientific knowledge lead to the emergence of architectural schools that adopted variable theories in the content of the material value produced by the industrial revolution. These theories led to neglect the heritage architecture aspects, the necessity of simplifying the forms and architectural elements. As well, the Industrial Revolution also supported taking advantage of modern building methods and new construction materials to construct buildings that are light and more economical. The architecture of this period was called Modern Architecture; the most famous architectural pioneers in that period were Frank Lloyd Wright and Walter Gropius. This period continued until the Second World War, to form new and urgent circumstances, one of the results of this period was that clear neglect of the privacy and cultural diversity [8]. After that, in the late twentieth century, a trend appeared towards research and analysis regarding the content of concepts and ideas related to heritage architecture in attempts to revive the heritage values to reach contemporary architecture that benefits from the spirit of heritage without imitating it. Then a several architectural theories emerged, such as technology architecture, deconstructive and digital architecture, and other global trends. The most prominent of these trends is the local identity trend and architectural values that produced creative architecture without imitation and conveying its vocabularies.

IV. HERITAGE ARCHITECTURE BETWEEN FORM AND CONTENT

The form and the content in the heritage architecture are complementary elements and essential components of the architectural heritage. The form is considered a tangible physical component and is expressed in the traditional architecture of the structural component as building materials and construction method. The aesthetic dimension is expressed in aesthetic formations, such as the use of proportions in design, as well as the use of motifs in their various forms. As for the content, it is a caliber of a set of values and principles upon which the traditional architecture was based. These values can be religious, emotional, or social etc. [6]. Incorporation of them into architectural elements and vocabulary that are influenced by traditions and heritage in the field is made feasible. Also, these values illustrated by current technology in architecture and construction bear authentic heritage spirit [10].

V. COMMUNICATION AND CULTURAL CONTINUITY IN EDUCATION PROGRAMS

For the sake of civilization continuity, there must be an educational trend regarding the importance of past achievements, as well as the prevailing environmental conditions and the spirit of the times.

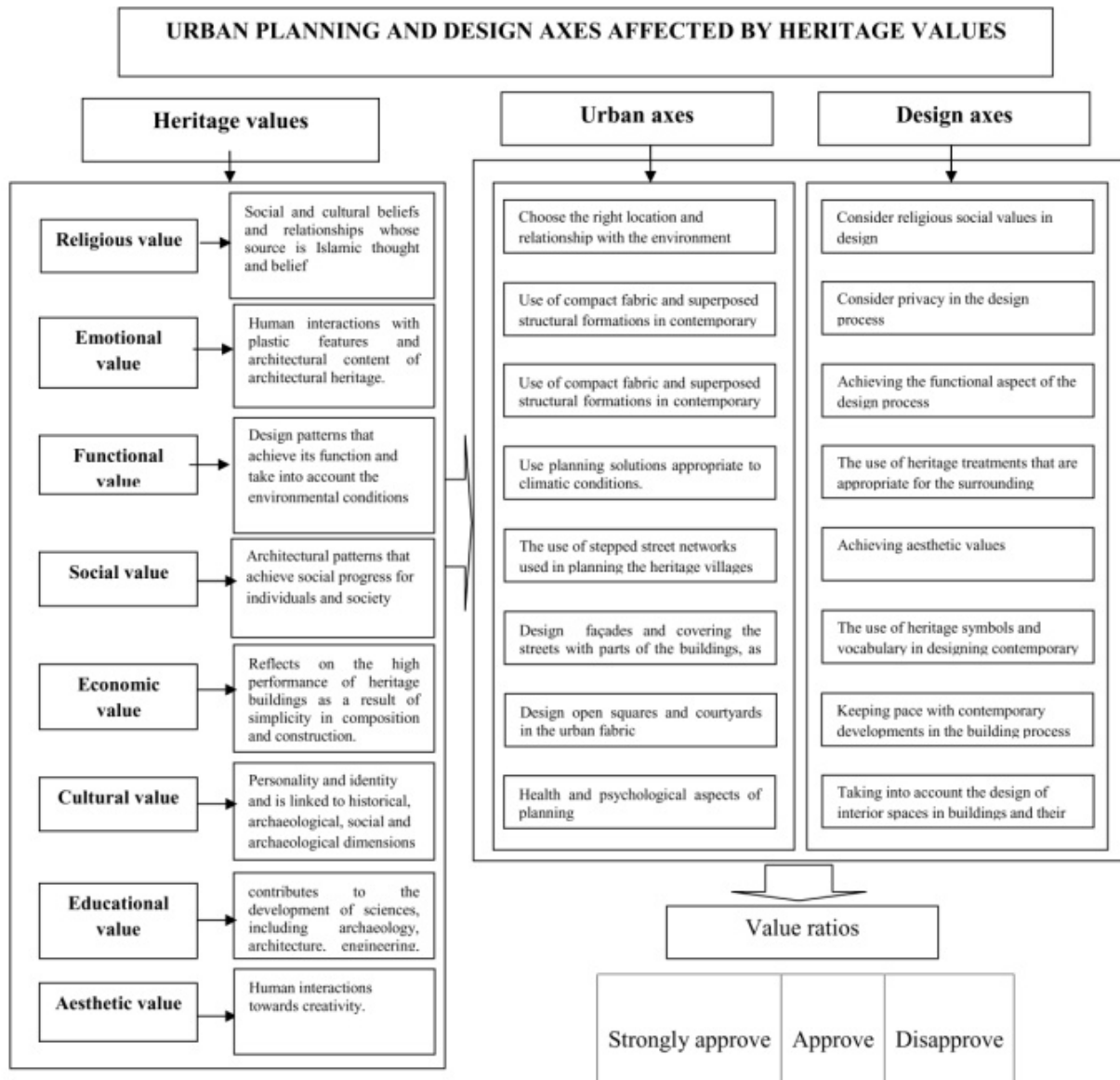


Fig. 1 Theoretical framework of urban planning and design axes affected by heritage values

Civilization continuity means continuous succession and cultural production in all areas of human activity. This continuation requires focusing on spirit and capabilities of the times, not ignoring cultural, social, economic and technological changes [11].

The logic of continuity and civilized communication necessitates evoking and analyzing the architectural heritage values to furnish them in order to produce contemporary works, as these values contributed to a great civilization development in its era and we are still witnessing this development to this day.

Communication and continuity between heritage and contemporary is a connected entity where the past was present and the present will become past and so will the future. Therefore, this research paper presents examples of some

contemporary projects in the Al-Baha University in KSA and it attempts to revive the architectural heritage. Some of these projects follow the direct approach to reviving without taking into account the cultural dimension, while there are architectural works that endeavor to use the traditional vocabulary in a contemporary way such as the Amana building and the Ministry of Transport building. On other hand there are other works trying to use a heritage icon attempting to impart spirit and values of heritage in design in a contemporary way.

VI. SCIENTIFIC TRENDS IN UNIVERSITIES OF SAUDI ARABIA TO REVIVE ARCHITECTURAL HERITAGE

Academic scientific trends varied to revive the architectural heritage in Saudi universities between direct revival based on

the preservation and restoration of architectural monuments. This is what the most courses and research projects follow by using of materials that are compatible or match the existing ones.

The main objective of the revival is the process of architectural preservation, rehabilitation or re-employment. Like other heritage revival studies, they are rare and vary between studies dealing with the process of reviving heritage by using of visual, and inspired elements of the heritage architecture, or studies dealing with revival content and benefiting from the traditional architecture values and using the requirements of the age [5].

A research revival sample of architectural heritage will be reviewed; it could be classified as follows:

- 1) Direct revival studies, such as preserving the traditional architecture in Al Ain Heritage Village, which is an example of direct revival based on restoration.
- 2) Revival through restoration and re-employment, as an

experience in the completion and re-employment of Qasr bin Raqosh in Al-Baha.

- 3) Studying revival by transportation and imitation as an experience of establishing modern hotel units inspired by the character of heritage buildings in the of Al Ain Heritage village.
- 4) Study on the revival content by expressing the heritage features in a contemporary abstract way.

A. Direct Revival

Through direct quotation from heritage, such as the rehabilitation project of The Ain Heritage Village in KSA, the elements were used without any changes or modifications [8]. That's to say, the designer used the same elements and details of the heritage buildings without reformulating or developing them so as to preserve the same heritage character, as in Fig. 2.

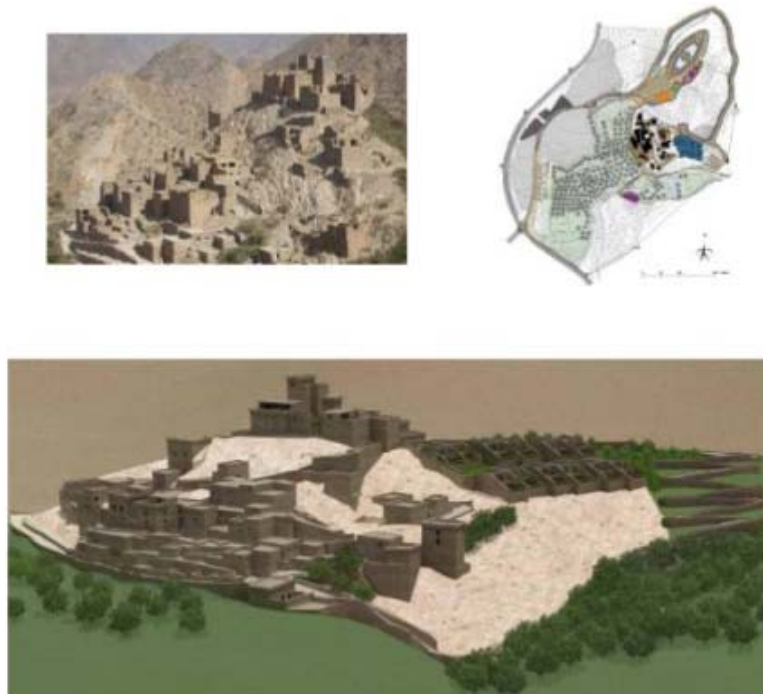


Fig. 2 Preservation of The Ain Village at the Baha city in KSA

B. Revival by Re-Employment

The same approach has been also followed in the restoration project of Qasr Bin Raqosh [6], where the designer worked on the restoration and re-employment of some of the palace units. In addition, the designing of commercial units preserves the heritage vocabulary and quote of it without any reformulation. Despite the concrete structural design of Al-Mabati, the designer used the gypsum stone as a cladding for the exterior and interior façades to imitate the character of the palace's façades, as in Fig. 3.

C. Revival by Imitation

The designer reformulates the traditional vocabulary items like heritage decoration units in a contemporary character; for example, the Ministry of Transport building, the Al-Baha secretariat building, and the (Emarah) prince building [7].

The designer also was able to combine the quoted heritage vocabulary with glass windows that express the contemporary image in an attempt to break free from the familiar image of heritage buildings and meet contemporary needs.

In administrative building project, the designer used optical and visual treatments as the proportions of the openings in the solid facades similar to the proportions used in heritage

buildings, to give the building a local character, as in Fig. 4.



Fig. 3 Revival by re-employment in project Qasr Bin Raqosh



Fig. 4 Revival by imitation in projects Ministry of Transport building, the secretariat building and the Emarah building



Fig. 5 Revival by the content in projects of Al Baha University and the Saudi Airlines Building

D.Revival by the Content

The clarity of adopting heritage features in icon picture is shown in Albaha University and Saudi Airlines premises where the design relies on theories of abstraction and liberation from the familiar image of heritage buildings. This is done by the use of advanced technology and treatments that bear the values of heritage [9]. This includes optical treatments such as openings, block ratios and external finishing materials and treatments of functional elements; the use of interior courtyards in buildings for ventilation,

lightening and other treatments that carry the spirit of heritage and manifest contemporary needs, as in Fig. 5.

VII. THE QUESTIONNAIRE

The study is resumed by conducting personal interviews and questionnaire forms with the academics architects and researchers at Al-Baha University. They discussed and argued the importance of focusing on heritage values in the educational process and benefiting it in the design process and revival projects. This was done to contribute to enriching the

research process and obtaining different results and realistic contemporary ideas.

This stage was carried out in two stages:

- 1) Personal interviews and their questionnaire forms: It included conducting personal interviews with the research community from members of the teaching staff and researchers (40 academics) in order to benefit from their opinions and attitudes and receive responses in a form for personal interviews, which took into account clarity and direct style in the questions.

The current study used a 4-point Likert scale which was administered to a group of faculty members and teaching assistants from the Department of Architecture at Faculty of Engineering of Albaha University, KSA.

- 2) Analyzing the results of interviews and questionnaire forms: This stage includes analyzing the answers and opinions of the samples chosen in the research community, and it is characterized by the conclusion of realism and the priority of heritage aspects and design values in the contemporary local architecture.

VIII. DISCUSSION AND RESULTS

First: Important axes of heritage values were discussed with the academics architects and researchers, (see Tables I & II, and Fig. 6).

Dialogue axes	Content of axes
First axis	The importance of traditional values in the contemporary local architecture
Second axis	The importance of use of traditional architectural values rather than focusing on the visual plastic elements in the bio-design process
Third axis	The possibility of linking the planning and design standards for traditional architecture with the capabilities and conditions of contemporary local architecture.
Fourth Axis	The importance of employing traditional values to achieve sustainability and cultural continuity

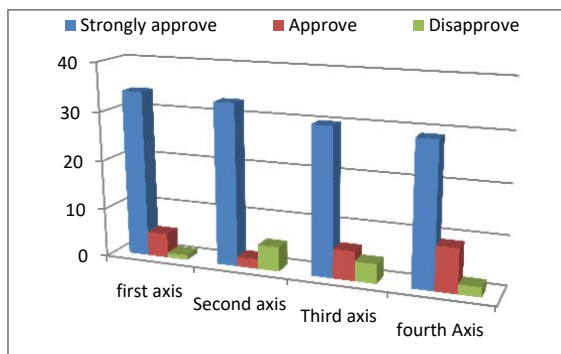


Fig. 6 Axes analysis Results of the importance of the heritage values

Results of the Analysis

- The approval percentage was great on the importance of benefiting from the heritage values with the aim of improving the contemporary urban and architectural character, the total ratio was 87.5%.
- The approval rate was great among academics, about

87.5%, to take advantage of architectural values, while the minority approved hesitantly and stressed to clarify an interpretation of the concept of those values.

- A large percentage of academics showed the possibility of linking to the production of contemporary local architecture; the total ratio was 90%.
- A very large percentage of academics approved the importance of combining heritage values with the age requirements to achieve sustainability, and this indicates the importance of that axis, the total ratio was, 95.5%

Second: The importance of integrating heritage urban planning values into contemporary architecture, (see Tables III & IV, and Fig. 7).

Content of axes	Strong approve ratios	Approve ratios	Total improvement ratios	Disapprove ratios
The importance of traditional values in the contemporary local architecture	85%	2.5%	87.5%	12.5%
The importance of use of traditional architectural values rather than focusing on the visual plastic elements in the bio-design process	82.5%	5%	87.5%	12.5%
The possibility of linking the planning and design standards for traditional architecture with the capabilities and conditions of contemporary local architecture.	75%	15%	90%	10%
The importance of employing traditional values to achieve sustainability and cultural continuity	72.5%	22.5%	95%	5%

Dialogue axes	content of axes
First axis	Importance of choosing the appropriate location and its relation by the environment.
Second axis	Use of compact tissue and superimposed structural formations in contemporary solutions
Third axis	Use planning solutions appropriate to climatic conditions
Fourth Axis	Use of heritage graded streets in modern planning
Fifth axis	Importance of facades visibility covering parts of the streets, as well as planning the traditional villages.
Sixth axis	Importance of providing open squares and courtyards in the modern urban planning
Seventh axis	Importance of achieving religious requirements in urban planning
Eighth axis	Importance of health and psychological aspects in planning

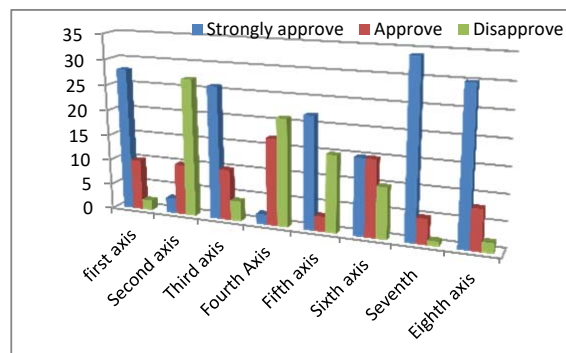


Fig. 7 Axes analysis Results of the urban planning values

TABLE IV
THE PROPORTIONS AXES OF THE POSITIVE URBAN PLANNING AXES AFFECTING THE DESIGN PROCESS

content of axes	Strong approve ratios	Approve ratios	Total improvement ratios	Disapprove ratios
Importance of choosing the appropriate location and its relation by the environment.	70%	25%	95%	5%
Use of compact tissue and superimposed structural formations in contemporary solutions	7.5%	25%	32.5%	67.5%
Use planning solutions appropriate to climatic conditions	65%	25%	90%	10%
Use of heritage graded streets in modern planning	5%	42%	47%	53%
Importance of facades visibility covering parts of the streets, as well as planning the traditional villages.	55%	7.5%	52.5%	47.5%
Importance of providing open squares and courtyards in the modern urban planning	37.5%	37.5%	75%	25.5%
Importance of achieving religious requirements in urban planning	85%	12.5%	97.5%	2.5%
Importance of health and psychological aspects in planning	75%	20%	95%	5%

Results of the Analysis

- A large percentage of academics approved on the necessity of choosing the appropriate site and merging it with the environmental environment, whether urban or surrounding services. The aim was to harmonize with the site and the surroundings. The weight of this influencing axis in the design process was 95%.
- A large percentage of academics disapproved the use of compact fabric in contemporary solutions due to the difficulty in accommodating services in light of urban reality and urban and technological development, and the weight of this axis was 32.5%.
- A large percentage approved using traditional planning solutions to face the surrounding climatic conditions. The weight of this axis was 90%.
- A large percentage disapproved using this network of streets because of the difficulty in accommodating modern means of movement, as well as for the facilities of modern infrastructure, and the weight of this axis was

47%

- More than half approved on the importance of visibility in the facades and covering the streets with parts of the buildings, as well as planning the traditional villages. While the rest rejected the difficulty of implementing this solution in contemporary buildings and the weight of this axis was 52.5%.
- A large percentage approved providing squares and markets among the residential communities. This was because of the health outlet they provide, which has environmental, health and social benefits beneficial to society, and the weight of this axis was 75%.
- A large percentage of academics approved on the importance of achieving religious requirements in urban planning, given the importance of adhering to religious values in society. 95%.
- A large percentage approved on the importance of health and psychological aspects in planning, given the importance that self-preservation represented in terms of moral value. The best solutions must be provided to achieve them in the best possible way. The weight of this axis was 95%.

Third: Data in Tables V& IV and Fig. 8 focused on the importance of integrating traditional design values into contemporary architecture.

TABLE V
TOPICS DISCUSSED TO INTEGRATE HERITAGE PLANNING VALUES INTO CONTEMPORARY ARCHITECTURE

Dialogue axes	content of axes
First axis	Importance of observing religious social values in design
Second axis	Importance of taking privacy into account in the design process
Third axis	achieve the functional aspect of the design process
Fourth Axis	Importance of using heritage treatments that are appropriate for the surrounding environment
Fifth axis	Importance of achieving aesthetic values
Sixth axis	Importance of using symbols and traditional vocabulary in designing contemporary buildings
Seventh axis	Importance of keeping pace with contemporary developments in the construction process
Eighth axis	Take into account the design of interior spaces in buildings

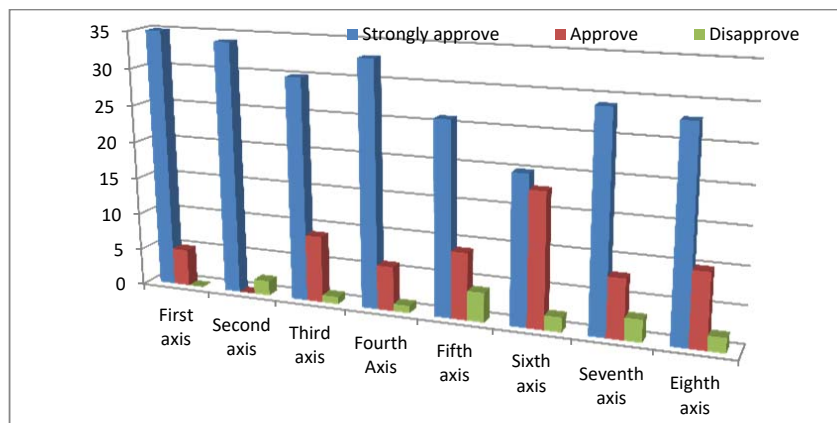


Fig. 8 Axes analysis Results of the planning values

TABLE VI
PROPORTIONS OF THE POSITIVE PLANNING AXES AFFECTING THE DESIGN PROCESS

Content of axes	Strong approve ratios	Approve ratios	Total improvement ratios	Disapprove ratios
Importance of observing religious social values in design	82%	18%	100%	0%
Importance of taking privacy into account in the design process	85%	10%	95%	5%
achieve the functional aspect of the design process	75%	22.5%	97.5%	2.5%
Importance of using heritage treatments that are appropriate for the surrounding environment	82.5%	15%	97.5%	2.5%
Importance of achieving aesthetic values	65%	25%	90%	10%
Importance of using symbols and traditional vocabulary in designing contemporary buildings	50%	40%	90%	5%
Importance of keeping pace with contemporary developments in the construction process	72.5%	20%	92.5%	7.5%
Take into account the design of interior spaces in buildings	70%	25%	95.5%	5%

Results of the Analysis

- A large percentage of academics approved on the importance of observing religious social values in design. That's because of these religious obligations they suspect and in order to preserve privacy and respect customs and traditions 100%
- All opinions approved on the importance of observing privacy in the design process 95%.
- All opinions approved on the need to meet job needs of 97.5%.
- All opinions approved on the necessity of benefiting from these traditional remedies, as they bear creative ideas compatible with the environmental environment, 97.5%.
- All opinions approved that it is important to achieve aesthetic values because it means visual value that enriches the visual process 90%.
- The half approved using the heritage symbols and using them as they are in contemporary designs. The other percentage approved using it in an abstract manner, giving the recipient 90% continuity of the traditional visual memory.
- Most opinions approved on the importance of using modern technologies in architectural work 92.5%.
- Most opinions approved paying attention to the internal spaces of buildings, as the content for all human activities is 95.5%

IX. RATIOS OF THE AXES THAT HAVE BEEN DISCUSSED

A. First: Result Ratios of Importance of Heritage Values

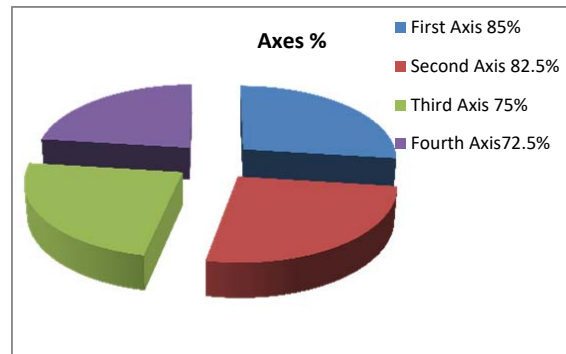


Fig. 9 Strong agree ratios of the importance of heritage values

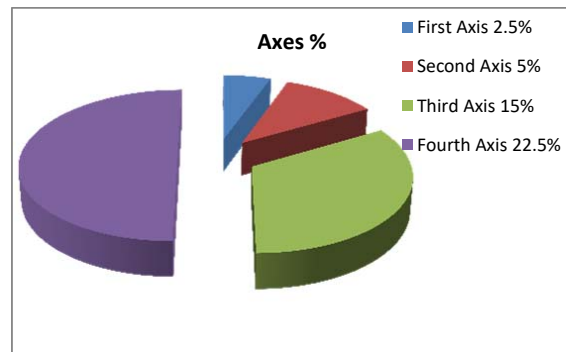


Fig. 10 Agree ratios of the importance of heritage values

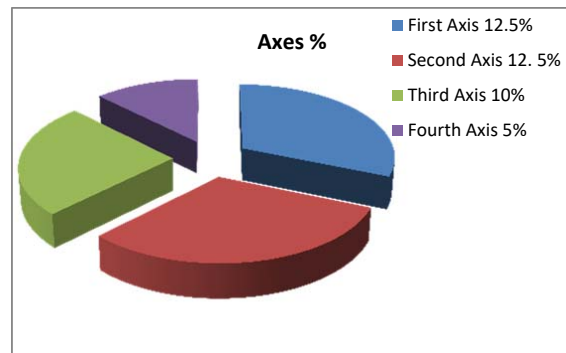


Fig. 11 Agree ratios of the importance of heritage values

B. Second: Result Ratios on the Importance of Integrating Heritage Urban Planning Values into Contemporary Architecture

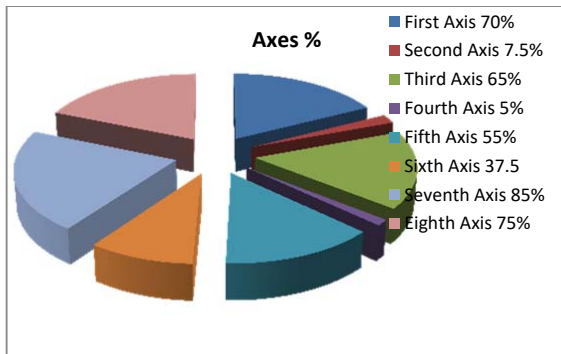


Fig. 12 Strong agree ratios of the urban design values of heritage values

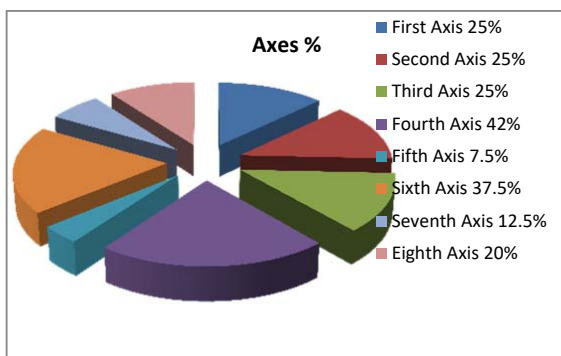


Fig. 13 Agree ratios of the urban design values of heritage values

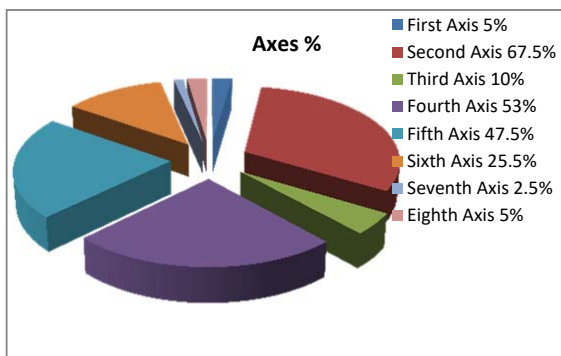


Fig. 14 Disagree ratios of the urban design values of heritage values

C. Third: Result Ratios on the Importance of Integrating Traditional Design Values into Contemporary Architecture

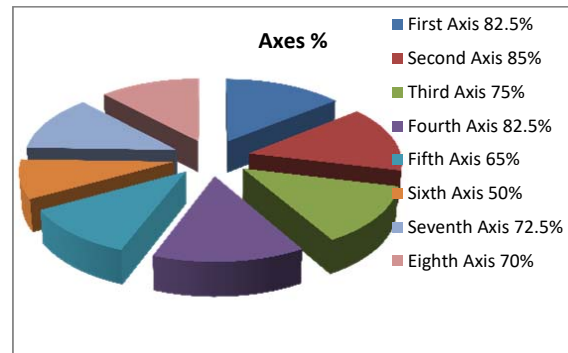


Fig. 15 Strong Agree ratios of the design values of heritage values

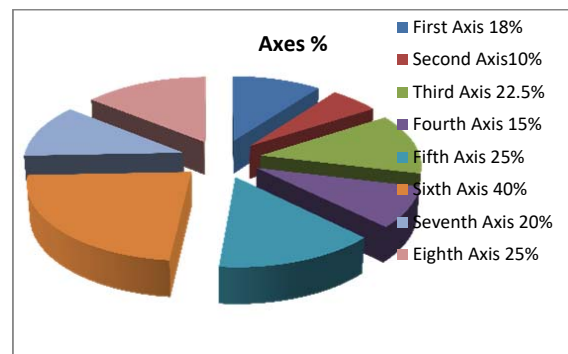


Fig. 16 Agree ratios of the design values of heritage values

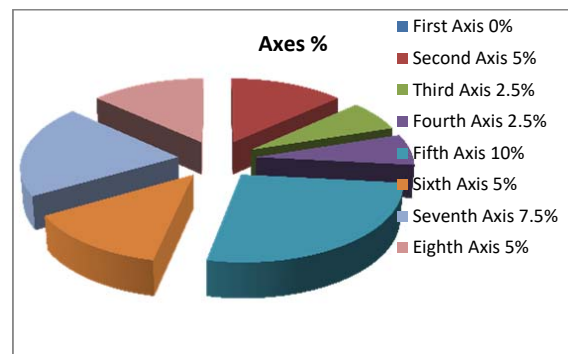


Fig. 17 Disagree ratios of the design values of heritage values

X. CONCLUSION

- New concepts should be embodied in the values when developing contemporary local architecture.
- University education programs should include training researchers and students to benefit from the values and principles of traditional architecture, especially those based on religious concept.
- It is necessary to define the axes of the principles and values of the traditional architecture and the applications of those values in contemporary architecture.
- The components and programs of the traditional architecture must be presented in a complete manner

instead of dealing with methods of preservation and restoration. This happens although they have the awareness of academics of the values of traditional architecture.

- The values and principles of heritage architecture in design and planning lead to sustainability and solving many of the problems of contemporary local architecture.
- An approach to architectural education program must be considered in Saudi universities, where students need to visit the heritage villages and attend workshops. This will enable them to deal with the values of that architecture in modern designs.
- Heritage architecture should be considered as a cultural phenomenon value that can be continued civilly and in line with rapid modern changes.
- Attention must be paid to heritage values and focus on them in educational curricula in architectural engineering departments. This can include revision of heritage values to incorporate them in architecture teaching focusing on currents techniques and technology.
- Spiritual and aesthetic values are the main pillars of architectural heritage. Therefore, the process of reviving heritage must be related to these values linked to the adaptation of technical, economic, and social changes.
- Many of the heritage values such as religious, social and cultural values came with a large weight in the design process despite the variables; times, aesthetic and economic.
- Administering personal interviews to the staff members shed light on the importance of heritage values and the need to integrate them into the design process.
- The results of those interviews also contributed to determining the proportions of the most important planning and design axes. This can be considered a positive indicator for the importance of the implementation of heritage architectural values.

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