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The Indistinct Role of Community between Architect Decisions and Design Process Stages "Case Study - Egypt"

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Abstract: *Architectural product is a direct result of the interaction between three main aspects; architectural design phases, Architect decisions and User (Main part of the community). In fact, Egyptian Community has suffered greatly from non- participation of its members in making design decisions of public buildings. Actually, when the Architect makes an architectural design, he only depends on his experience and knowledge as well as binding governmental laws to meet the customer requirement. In addition, the Architect may use some social and human studies submitted by governmental entities and authorities at other times. Therefore the Egyptian community members often reject the building and they may consider it as enforced on them.*

Thus, the research paper provided various aspects of community participation in different phases of the design process stage. Also, the paper referred to Egyptians Architects by conducting a questionnaire to take their views on whether they accept community participation in design decisions or not, then it pinpointed the stage of the design process where members of the community may participate. The research explained the most suitable kind of community participation form the Egyptian Architect points of view.

Keywords: ***Community needs, Community participation, Design methodology, Design process.***

1. Introduction

Recently, design methodologies and its phases were brought to attention as a central objective to solve social problems. A design problem is always proposed in order to reach a suitable architecture product through the various phases of design. This role falls on the shoulder of the Architect, who in turn takes the responsibility of making the design decisions to meet the escalating human needs within the community. Since, the human needs are the direct reflection of technological development and differences of social, economic and cultural levels as well as political situation within the community.

Apparently, the Egyptian community has what distinguishes it from other communities, making the Architect mission more difficult in terms of selecting the architectural style of the urban environment. This requires him compatibility and coordination with all the different aspects of community as being responsible for the selection of architectural output of the constructed environment.

2. Problem

Design problem is focused on the lack of clarity of the Egyptian community role between Architect decisions and design phases of public buildings. As public projects are being implemented without being proposed for community participation during the design phase or implementation. Thus, the search poses a series of questions**:**

Does the Egyptian Architect accept participation of community members in his design decision-making? At any phase of the design process can architect involve members of the community? How can members of the community of different levels participate in the design phase? Does the extent of community participation depend on the type of the building and its function?

1.1. Objective

The research aims to:

1. Shed light on the importance of community members' participation in the design in order to solve a lot of social problems.
2. Show the degree of Egyptian architect acceptance or rejection of the principle of community participation in architectural design**.**
3. Develop a mechanism for community participation in the design of public buildings in Egypt to achieve the satisfaction of the community in terms of the built environment.

1.2. Research Methodology

The research methodology is based on:

1. Inductive approach: By identifying the architectural design approaches, different phases of the design process, used design methods and the definition of community.
2. Deductive approach: Where the different aspects of community participation in the design process is determined. In addition to making a field study through the questionnaire on the Egyptians architects involved in the design of public buildings in Egypt, to take their views on the participation of Egyptian community members in design phases without imposing the building in its final form on the urban environment.

3. Architectural Design Methodology

Design methodology is a generic term that describes any structured approach to solve some or all of the problems related to architecture [1]. **Architectural design approaches is divided into two main categories, as follow:**

3.1. Conventional Design Methodology

The approach followed without fixed and clear steps by the Architect. It is an approach of the early architects in conventional architecture.The Architect expertise and talent plays the main role in solving the phases of the design problem. The conventional approach used by architects is incapable of solving complex problems need to be solved. Thus, without analyzing the problem to a number of problems, the architect may select the previous solutions to solve a problem whenever he had the opportunity

3.2. Rational Design Methodology (RDM)

A RDM It is a rational approach in the form of guidelines. As it is an organized series of rational procedures driving the design process from the rational perception phase to the actual implementation of the design [2]. Today, with the increasing impact of information and communications technology, many architects take different steps and phases of design. Whenever it is possible, the Architect should communicate with different teams from all over the world to implement design tasks [3]. Despite the evolution of scientific and technological methods of architectural designs, the Architect must return to the social values of the communities as they play a key role in shaping the built environment.

4. Design Process

The design process is completed in the form of a series of actions directed to a specific goal, whether architectural product or architectural description. The design process can take several forms:

4.1. Black Box (Creative perspective)

A creative mysterious leap characterized by spontaneity, intuitive, talent and expertise of the architect. In which the architect makes many experiments and attempts to reach the right solution. Thus, the design steps are clear because they are in the mind of the designer alone without the participation of the community. It also follows the conventional approach in this type of design, as it depends on the architect only in unclear steps to complete the

design phases. This type of design is the considered type by architects in Egypt, especially in the design of public buildings.

4.2. Glass Box (Rational Perspective)

It is a logical rational process in sequential steps relies on logical analysis until reaching the optimal solution. This method emerged as a natural reaction to the increased human needs and requirements after the Second World War in different communities. This kind of design processes depend on identifying the problem and broke it down into a number of problems that can be solved by logical thinking and individually and may in some cases use the help of mathematical means. Horst Rittel "1958 to 1963" explained the relationship between science and design, particularly the use of logical successive operations in design processes that emerged on the late 19th century [4]. This was followed by a large number of architects who stated the logical different phases of the design process; "Morris Asimow1962" is one of them. He defined the design process as the collection and handling of information in a creative organization of a specific problem. Thus, the design decisions being derived after the process of evaluating them [5]. And also this definition of the architectural design process depends on expertise and skills of the Architect in collecting, analyzing, organizing and evaluating information [6].

The design process includes architectural answer on some of the questions in the first two phases (gathering and handling of information: What kind of information should be accessible for use in the analysis? Does this information include the nature of community, its members and their needs? Should the Architect verify these needs himself or just depends on statistical data of specialized entities? The third phase (Creative organization) based on the architect and his skills and analytical ability. In the same year, a design methods conference was held in England, which was originally drawn from one in 1962[7] called "The Conference on Systematic and Intuitive Methods in Engineering, Industrial Design, Architecture and Communication".

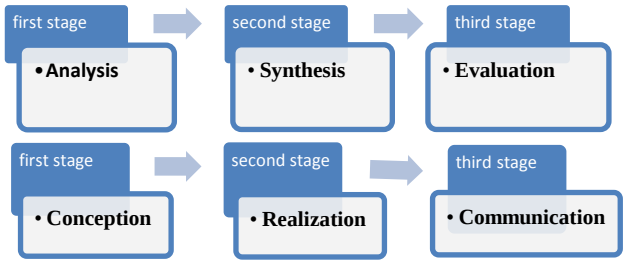

Fig.1: Design stages of the process from the point of logical considering.

This conference has had a significant impact on a lot of architects in finding partial solutions to the problem of design. In addition, many participants published their research related to design during this conference. During the conference three workshops "camps" were held to explain design process and phases and used design methods.

- *Behaviorism*, interpreted design methods as a way to describe human behavior in relation to the built environment (taxonomic* activities).
- *Reductivism*, broke design methods down into small constituent parts. This scientific approach tended to rely on rationalism.
- *Phenomenology*, approached design methods from an experiential approach (human experience and perception).

Following this conference the three design steps gained different names. But it has been carried out through three steps, despite different names of these steps [6]. These steps sequentially differentiate, as the completion of one of the phases as a prerequisite for the start of the other phase. The design phases will be explained as follows:

The First Phase: (The Analysis Phase) In this phase the design problem is divided into groups easy to handle. Then, analyzing the interactions between the various groups, where the human needs of community individuals are considered one of these groups, which must be analyzed. In Egypt, there is no clear role for the community at this phase of design phases. As knowing human needs is limited to the governmental, administrative and security authorities statistics and data without addressing the actual community participation fig. 1

Second Phase: (Phase synthesis) The phase of finding solutions to each of the above groups all the way to the appropriate design. This phase went through serious steps including, partial solutions to the problems, dealing with determinants, creative thinking, brainstorming, and overlapping solutions. In Egypt, there also is no clear role for the

community at this stage. As the Architect largely depends on his architectural experience, knowledge, similar projects and his previous projects that were implemented outside Egypt.

Third Phase: (Evaluation phase) This Phase will be implemented through serious steps using charts, graphs, interview, questionnaire and experiments to evaluate and assess vision of the architect. It is the point at which the most feasible solutions of the problem [architect decisions] is selected.

In Egypt, we find that architect exclusively selects the appropriate solution to the problem without refereeing to community participation. But he can return to the community after running the building to measure the satisfaction of users of the design as part of the humanitarian studies to the community members.

4.3. Design as a Self-Organizing System (From Multiple Steps and Phases of Design Perspective)

In this introduction to the definition of the design process we deal with the design as a strategy and objective through a number of steps, but not the product of completely logical rational process, as in the glass box method. The Architect needs, through this introduction, to gather information, identify the problem, find and evaluate solutions and show his project. Fig. 2.

With the possibility of freely moving between the design process steps, and if the architect became certain at any phase of the design that the community will not accept the design, he may go back to previous phases to return solutions. A number of architects adopted this approach in the design process phases, including for example, Paul Laseau said, “The architecture is facing major challenges, should the architects to do with solving the problems of the project instead of solving the problems of the people, and by helping them to understand their basic needs”[8].

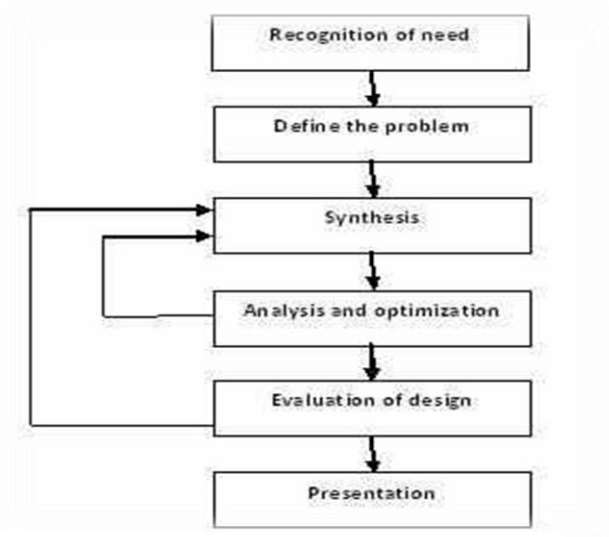

Fig. 2:Design as a Self-organizing system, Emory W.Zimmers,Jr. and Mechanical staff, “Mechanical Engineers, Hand book: Materials and Mechanical DesignVolume1,” Enterprise system center, Lehigh University, Bethelem, Pennsylvania, 2006

This approach requires participating community's members and helping them to build their community. On the grounds that the design problem does not arise in the mind of the architect, but he can discover creative ideas during his participation to know the community needs. Thus, the conflict which arises in the architect's mind between creative thinking and analytical thinking, need to move freely between all stages of the design process. The architect, in this conflict, depends on his experience and ability to deal with problems and deduce solutions with the participation of the community's members in every step of the design process to ensure the community acceptance on the built environment.

There are two forms of community participation; one of them is directly through the participation of community's members and the architect to make the design decisions. But, the indirect community participation is done through the architect's usage of data and community statistics existed in governmental entities that may be in most cases, is un-updated and does not include whole aspects of the community. The latter form of participation is used in the design of public buildings in Egypt.

At the same time, there is a call from a large number of architects to develop the architectural books along the lines of the various communities to produce catalogs of different styles of design [9], as a step to solve the problem of community participation within communities are not able to adopt the principle of participation in decision-making. But, these calls are not receiving great acceptance because of the variety of human needs inside the levels of same community on one hand, and lack of compatibility with the concept of pattern language on the other hand, which is known as "how human beings interact with built forms" and the proportionality of architectural design with the local community members, climate, tradition and culture. The matter is up to the architect to figure out the appropriate style as needed through his study of lifestyles, traditions and customs on the community itself. On the other hand, the concept of (form language) also does not allow the direct community participation in the design

process stages because it depend on consists of geometrical rules for putting matter together. It is visual and tectonic, traditionally arising from available materials [10]. As this concept does not allow the architect to develop the creative thinking in a way commensurate with the community member's needs. But it depends on the environmental materials available within the community.

Through this introduction of the design process stages, we can emphasize the participation of the architect with the community members to make the design decisions, depending on his experience, knowledge and ability to analyze the data fig. 3. But within Egyptian community, we find that the architect is designing the public buildings alone without resorting to the direct community participation. In this way, the project is being imposed on the community by using one of the design methods to accomplish the design tasks.

Hence, we must be addressed to the common classifications of design methods which it was the most famous of these classifications rating Broadbent. He said that the architects have used four major approaches of design activity [8]: which its call pragmatic, iconic, analogic and canonic. Each design approach is analyzed and found wanting as a complete answer to architectural problem. From his point of view, the role of the architect in making design decisions according to the information which analysis, to include the humanitarian needs of the users within the community shows.

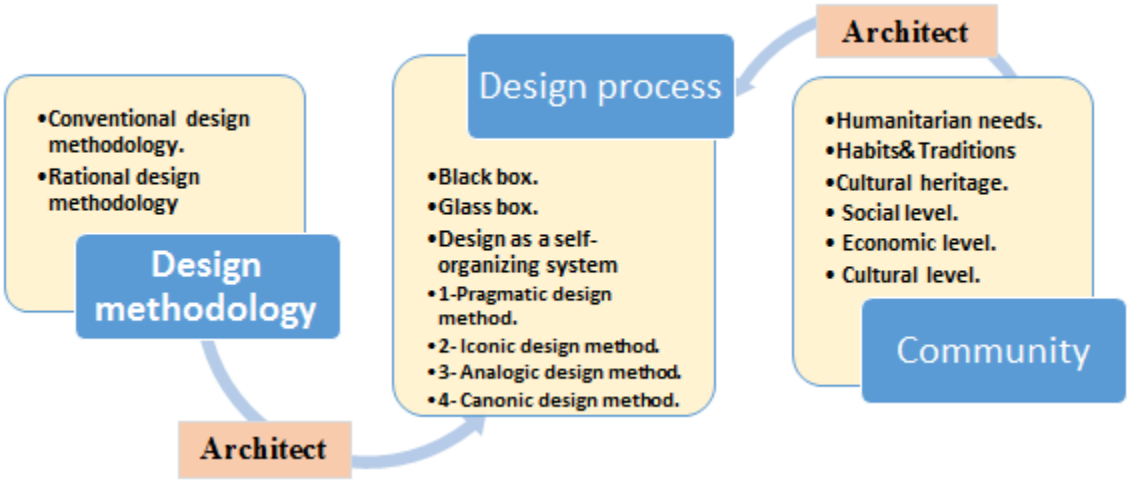

Fig. 3: Architect makes relationship between Design methodologies, Design process, and community-"Author".

4.3.1 Pragmatic Design Method

This method is called; trial and error method. This technique depends on a number of trials to achieve the most appropriate solutions. The practical tests may include the model of the building or similar buildings and measure the extent of the building affected by different factors of nature (sun and wind) until we reach to the shape of the building match with the environment it covered. Such as Eskimo Houses that were built in form of large blocks of ice placed in loops on top of each other and covered with skins of animals from inside to warm it up [4]. This became the optimized style for extremely cold areas.

4.3.2 Iconic Design Method

This method means that the architect is using former ideas and formations. Whereas these solutions are used for architectural problems no longer exist now but this method is still an acceptable solution. For example: the use of the Romanian, Pharaonic, Islamic models in the current design despite the end of the ages.

4.3.3 Analogic Design Method

In linguistic dictionary, analogy means a comparison of two things based on their being alike in some way. But in the design, the visual measurement is used to solve the projects problems as being considered a strong strategy to solve the problems [11]. It's a powerful way of innovation itself, but involves the risk of passive design [12]. This

case can be found when the architect uses a measurement without regard to the social and cultural dimensions of a particular community.

4.3.4 Canonic Design Method

In this method of design, the connection between the various data is being through dealing with governmental applications and laws. In order to reduce costs by merging the business systems and standardization of data associated with each other according to the organized laws.

A major source of confusion is that a design method could adapt to a style, but not to human use. For example, it might adapt to a set of predetermined geometrical prototypes, such as cubes and rectangular slabs. It takes on that particular **form language**. It is successful on its own terms while at the same time ignoring, or not trying to accommodate, human patterns of use and the sensory response to build form and surface [13]. In the same time, the absence of a design method for judging a design, things have become subjective [14]. Therefore, what is built today appears to be influenced largely by fashion, and an individual's desire to garner attention through novel and sometimes shocking expressions without paying attention to the community that contains this building. This thing often happens in a society such as the Egyptian society where the miss of popular participation to its members.

4. The Role of the Community in the Design

There are several general definitions of the word community, but the broader meaning that a social group of any size is staying in a certain place, and a group of its members form its governing government, and have joint historic culture and heritage.

The community can be defined as a group of individuals living in a particular environment which with all its components form the Individuals' behavior and their needs. The built environment constructed by architect is considered one of these environments. Thus, the architect is designing for a particular community, which in turn affects the behavior of its members and influenced by them. The architect may follow an approach based on democracy in the decision-making, which in turn result in many social and economic benefits to the community members, rather than the traditional approach in decision-making alone. But the mind addresses set of questions about the role of the community in the design process? What is the optimal form for the process of community participation in the design decisions?

Through readings on the ways and methods of community participation in decision-making in different communities. Three main axes to participate in the design stages have been developed, as follows:

First axis: It is the formation of community advisory boards (CAB) who share the identity, history, language, culture, customs, and traditions [15]. That its members are chosen from a variety of the community members to contribute with the architect in decision-making. Provided that they shall be selected on the basis of variety of the social and economic, and educational level and variety of individuals between workers and public users of the building to achieve their needs.

Second axis: It depends on the advisory team includes large number of the Department of Architecture students in Egyptian universities (up to 150 student / project). This team is able to connect his ideas to the community members by owned means of expression in engineering and illustrating drawings. They can present and express their ideas as users of public buildings to help architect in finding solutions for problems.

Third axis: all kinds of traditional community participation and means of collecting information through interview, observation and questionnaire are used in this axis. Specific points are selected for the participation of the community at every stage of the design process to verify the community members' needs vision for the building and the activities of its members.

Through these three axes, architect can participate in the design stages in different ways. Where every stage of the design process aims at a particular goal. To achieve this objective, one or more of these axes can be used. In the end, the architect chooses different ways of expression to facilitate the participation of each of these axes positively, Table 1.

TABLE I: Aspects of community participation in the design process stages.

Design process stages	Aim of stage	Axis and method of community participation
1-Recognition the needs	General information about the project and main human needs.	- *Community advisory boards C.A.B.*: consists of group of community members who share with the identity, history, symbols, language and culture. - *Problem puzzle*: By showing different images of spaces, activities and functions of similar buildings (CAB) to determine the size of the actual needs of this community of these spaces.
2- Problem definition	- Identify the main problem, and divide it into groups of small problems that are easily resolved and dealt with.	- *Problem definition*: the problem is usually defined by using the third axis of participation, through the questionnaire and interviews to know the community members' perception for their environment. Then the main problem is divided into a series of problems. - *Site lecture:* The architect gives them to educate people about the natural and built environment around them through a series of public lectures on the nature of the building and its functions.
3- Synthesis	Architect creativity Stage to find solutions to problems in different ways.	- *Design workshop :* By Using the first and second axes of participation and the preparing design workshop for about 150 students from the Department of Architecture. The goal of this workshop is the participation of users themselves in the design process, to reveal the ideas and its values, and finally incorporated them in the actual design. - *Architect design kit:* Through the presentation of different design methods in solving some of the same design problems on the community members to express their views freely.
4- Analysis and optimization. 5- Evaluation of design.	Stage for analysis and evaluation of the solutions to the problems and selecting the best solution.	- At this stage, it is resorting to workshops, but in different ways and in the following steps: - *Optimization kit:* This step is based on a questionnaire to know the individuals' views in the initial design methods used by the architect. Feedback: To know the community members' views in the actual design through interviews with (CAB) to find out their views in the pictures and cut outs related to ideas where it is difficult for non-experts to imagine the design and drawing ideas, but easier for them to understand the cut outs and images.
6- Presentation.	Showing the final design idea of the project and presenting it to the community.	- Through cooperation between both the architect and the second axis, the final project is presented to the community members. - *Users showroom:* the team of architecture students during a workshop presents the project through all the charts and drawings that illustrate and show architectural product items to the community.

5. Applied Study

Applied study was based on applying the questionnaire on 50 Egyptian architects involved in designing public buildings in Egypt. The questionnaire submitted a set of questions to take the views of architects to accept or reject community participation in decision-making design and design aspects of participation, which architect sees fit with Egyptian community. In order to determine the effective role that could be played by the community from the architects' point of view in making the design decisions for public buildings in Egypt, Table 2.

TABLE II: Statistic Answers and Comments of Questionnaire

Points of questionnaire	Statistic Answers & Comments	
- Is the design of public buildings in Egypt exercised through the participation of community members in the design process?	**Yes**	**No**
	20%	80%
	Comments: - Some *of the architects whose answers were "No"* stated that in Egypt, the owner determines the needs of the community after making the feasibility studies of the project in order to achieve maximum profit. Therefore, the task of the engineer is limited to meet the wishes of the client (In most cases, the client is the state) without regard to the participation of community members. - Some public buildings in Egypt have laws and rules governing the design process (such as: schools), and there is no scope for any kind of community participation can be done by the architect.	
- Do you agree the community participation in the design process stages? *** If your answer is "yes", continue answering the rest of the questions.**	**Yes**	**No**
	35%	65%
	Comments: - *Some of the architects whose answers were "No"* stated that the traditional design methodology is followed in architectural design. As the architect depends on his expertise and experience in designing similar projects and his knowledge of the community conditions. - The design should not be followed by specific steps, the architect shall design without following specific steps. - *Most of the architects whose answers were "No"* stated that Community participation in the architectural design is necessary, but it can't be followed in Egypt as a result of the political and security situation in addition to the low cultural and knowledge level among members of community. - Also, community participation in architectural design requires a long-time rehabilitation in positive participation for members of the community.	

	- Community participation is only represented in the social research and population studies centers within Egyptian society. - The involvement of the Egyptian community in the design process makes it a very complex process in dealing with government and security authorities.

- Which one of the design process stages should the community members participate in.	**All stages**	**At certain stage**
	30 %	70 %
	Comments: - *Most of the architects whose answers were "all stages"* stated that the community should participate until the completion of the evaluation of architectural product. -The architects believe that any particular architectural product is related to certain group, therefore community participation must help in every stage of the design process. -Architect can't accomplish the task of design without the community, because he is responsible for the community's acceptance and rejection of surrounding urban environment.	

Points of questionnaire	**Statistic Answers & Comments**					
- If the answer is "at a certain stage," In which stage the members of the community shall participate.	**Stage no"1"**	**Stage no"2"**	**Stage no"3"**	**Stage no"4"**	**Stage no"5"**	**Stage no"6"**
	85%	5%	0%	0%	10%	0%
	Comments: - *Most of the architects stated that the first stage* concerned with knowledge of the human needs is the most important stage of the design process. - Separation of the stages is not clear in the design process, and this makes it difficult to involve members of the community in the following stages of the recognition of the need.					

- Do you agree with the form of participation in each stage? * If your answer is "No", continue answering rest of the questions.	**Yes**	**No**
	85%	15%
	Comments: *Most of the architects whose answer was "No"* stated that the same method of participation should be followed in each stage because it provides the time and effort for architect and achieve the goal of participation. - Variation of participation forms is great, but testing the optimal form of participation is essential to the success of the design process.	

- Which kind of community participation do you prefer?	**Questionnaire (only)**	**Interview (only)**	**Combining the first and second axes of participation (C.A.B, advisory group of architecture sections students)**
	50%	40%	10%
	Comments: - Architects believe that the best ways of community members' participation in the design are the most common ways (interview and questionnaire). -The use of unusual ways of community participation is important to facilitate the design process stage. - Both the interview and questionnaire can be formulated to suit the cultural and educational level of the community members.		

-Participation shall be done through:	**Architect only**	**Government only**	**Both of Architect and Government**
	40%	5%	55%
	Comments: Most of the architects believe that the government is an integral part of the process of participation (the community participation can't be done without government interference). -Participation of the Egyptian community members in the design process is necessary, and this is done on the basis of the political requirements of each country in the legality or illegality of the questionnaire. - Experts and specialists in sociology and statistics shall be used to complete the process of community participation, because it is difficult to engineer to fulfill this role alone.		

- Are the followed design ways influenced by the design with the community participation?	**Yes**	**No**
	20%	80%
	Comments: - *Some of architects whose answers were "yes"* stated that the design ways are influenced by the views of the community members, especially in the (Synthesis stage). The architect has resorted to change his design in response to the requests of his community.	

Can the architect participate with the community in all kinds of design methodologies?	**Yes**	**No**
	5%	95%
	Comments: - *Architects whose answers were "yes"* stated that provided the architect shall be from the same society for which the design is (regarded as the architect is one of the community members and has the same needs and demands). -*Most of architects whose answers were "No"* stated that the traditional methodology in the design depends on the architect in the formulation of the idea and architectural product, therefore he does not follow clear steps that the community can be assisted by.	

6. Conclusion

The study concluded a range of results, at the level of community participation in stages of the design process in general and participation within Egyptian society in particular.

Results of community participation in architectural design stages:

- Architect is the link between the local community and architectural product. He is responsible for the extent of people's accepting for the project and the urban environment around them.
- It is better that the architect is from the same community, in which the building is designed. This makes the task of the architect to make design decisions that are compatible with the community more easily, regarded as he is one of the members of the society he is designing for.
- Variation of participation forms is necessary, but testing the optimal form of participation is essential to the success of the design process.
- The involvement of the community members in the design process may make it difficult to achieve the pattern language.
- It is better that the community participation shall be done in all stages of the design process in order to reach the appropriate design, with setting a goal for each stage separately as follows:-

-*Recognition the needs stage*: in which advisory boards consists of group of community members who share with the identity, history, symbols, language and culture shall be used in order to determine the community members' humanitarian needs.

-*Define the problem stage*: Through educating people about the natural environment by some public lectures about the building quality in which the main problem is divided into groups of small problems in order to make the architect's task more easily by understanding the true dimensions of the design problem.

-*Synthesis stage:* It aims that the architect shares his thoughts and different design ways with members of the community, through the presentation of the initial perceptions for the form of architectural spaces.

-*Analysis and evaluation stage:* Community participation aims at this stage to take the opinion of the community members using questionnaires and interviews before starting the completion of the proposed design.

-*Presentation stage*: This stage aims to define the final perception of the building and to help individuals understand the dimensions of the project through presented it in appropriate ways (pictures and cut-outs) before starting the implementation.

Results of community participation in architectural design stages within Egyptian society

- Egyptian architect who is designing public buildings prefers to take decisions of design alone, based on his experience, knowledge and being one of the community members. In addition to the architects" confirmation on the need for community participation until the community can be in line with its urban environment.
- The current political situation within Egyptian society makes it difficult to make any questionnaire or community participation in the architectural design process for public buildings.
- The social, economic and cultural situation of the Egyptian society affect the degree of members' participation in the design process. The concept of active participation in decision-making is a culture that needs a long time in rehabilitating the community on it.
- The laws governing within each society imposes a certain type of participation, especially within Egyptian society.
- Most Egyptian architects see that the traditional ways of participation through the interview and questionnaire are the optimal form for community participation, because of their flexibility in adapting to the different classes and cultures of society.
- Egyptian architect depends on the social studies and government statistics in accomplishing design tasks, on the grounds that it is part of indirect community participation.
- Some public buildings in Egypt have laws and rules governing the design process (such as schools), therefore there is no scope for involving community in the design process.

Recommendations

Through the study, a mechanism of community participation in the design process stages was developed, it consists of three main axes as follows:

First axis: It is the formation of community advisory boards (CAB) who share the identity, history, language, culture, customs, and traditions. That its members are chosen from a variety of the community members to contribute with the architect in decision-making. Provided that they shall be selected on the basis of:

- Variety of the social and economic, and educational level.
- Variety of individuals between workers and public users of the building to achieve their needs.

Second axis: It depends on the advisory team includes large number of the Department of Architecture students in Egyptian universities (up to 150 student / project). This team is able to connect his ideas to the community members by owned means of expression in engineering and illustrating drawings. They can present and express their ideas as users of public buildings to help architect in finding solutions for problems.

Third axis: all kinds of traditional community participation and means of collecting information through interview, observation and questionnaire are used in this axis. Then statistical results and its specialized programs shall be done for completing the architectural design works.

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