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## **Approaching Heritage Oriented Sustainability**

### **Pedagogic Experiment for teaching Architectural Design**

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#### **ABSTRACT:**

*In this era, it is considered a pedagogic challenge to raise architectural student's awareness towards the convenient approach to sustainability that emphasizes the uniqueness and sensitivity of local environment, communities and culture.*

*For introducing the concept of Heritage Oriented Sustainability to 3rd year architectural students, a pedagogic experimental course was designed at German Jordanian University (School of Architecture and Built Environment) to approach this concept.*

*The intended design course goal was to get the students involved in a design exercise (a medium scale project of a BUA of about 5000 m2 with moderate level of functional complexity) under the faculty and practitioners supervision.*

*The pedagogic design process exposed students to understand, think and work in three major values:*

- 1- Sustainability*
- 2- Heritage*
- 3- and Environment*

*The time frame was about four months (February to May 2010). Two studio sessions (four hours each) were conducted to supervise students each week. Evaluation Juries and Workshops were performed.*

*Students projects evaluation were exposed to four mile stones of discussion and reviews by representatives of project stakeholders. The mile stones were:*

- 1- Background Researching, site analysis, and functional program development*
- 2- Conceptual design*
- 3- Design Development*
- 4- Final Design*

*The students work, teaching methodology, project theme, evaluation process, and the whole effort results were under documentation and analysis for pedagogic research purposes.*

*At the end of this pedagogic experiment, the findings were in the form of a pedagogic approach evaluation to design Heritage oriented sustainability. The details and impacts of the process were observed on the students evolved awareness and understanding of the main values of Sustainability, Heritage and Environment.*

*The students work offered the working teams and decision makers a new perspective to consider rather than a final product.*

*Limitations were observed for exercising a complete design process.  
This engagement offered the local community support, sense of responsibility  
and socio-environmental sustainability for the restoration project that would  
introduce a model restoration for other locations in the future.*

**Conference Topic:**

**Keywords:**

Architecture, Pedagogy, Design, Sustainability, Heritage

## **1. INTRODUCTION:**

In this era of information technologies booming, the accessibility of technical information provided advantage to the industrially active societies. These societies are able to employ information technologies to spread a global approach to sustainability. Through promoting the concept of environment friendly building products, the consumed societies are bombarded with all kind of what is called sustainable building products. The global availability, the mass production of these products and the supporting information and studies provided a reasonable trend to utilize these products to target sustainability as an architectural design approach (Greene, 2002). In most cases, due to standardization requirements, these global design approaches lack the active response to the lessons reserved in the local heritage. Generally, these standardized approaches offer potentials to the built environment on the levels of emerged materials and innovative construction techniques and methods (Curtic, 1996). Despite that, most of these methods add towards the loss of characteristics and identity of local built environment, or at least they contribute to the fading of the local built environment uniqueness.

Based on this ground, the need is becoming critical in architectural design pedagogy to reach a customized approach for exercise creating newly built environments that employ the global knowledge while utilizing the local awareness of adaptation (Wines, 2000).

In this paper, the authors present the result of investigating the concept of heritage-oriented sustainability as a pedagogic experiment.

The authors initially intended this pedagogic experiment as a pilot effort to investigate the expected potentials and challenges that accompany adding layers of values to the basic curriculum objectives in architectural design teaching.

The author's purpose, as educators at German Jordanian University (GJU, 2010), was to raise architectural student's awareness towards the convenient approach to sustainability that emphasizes the uniqueness and sensitivity of local environment, communities and culture.

To introduce the values of heritage-oriented sustainability to architectural students at German Jordanian University – School of Architecture and Built Environment – Department of Architecture and Interior Architecture (GJU, 2010), in the scholastic year 2009-2010, the GJU supervising team decided to expose the intermediate level of architectural study students (3rd year level students) to these concepts.

The intention of the authors in this paper is to offer this experimental exercise experience to approach heritage driven and oriented sustainability to add values to the architectural design pedagogic curricula in architecture schools

## **2. HERITAGE ORIENTED SUSTAINABILITY:**

To achieve a common understanding for the heritage oriented sustainability expression, the following will introduce an explanation of the associated terms:

## **2.1. Sustainability in Architectural Design:**

In architectural design, recent trends were emerged with the beginning of the 21st century to cope with a late 20th century movement that aimed at raising awareness of the environmental complications of global warming and its co-relation with the ratio of carbon emissions released to the atmosphere. This awareness also opened the door towards alarming investigations for the environmental complications resulted from the exhaustion of energy resources through unfair consumption of the fossil fuel and depleted natural environmental resources (Greene, 2002). The result was advocating for developing sustainable products and practices and for the use of renewable energy that comes from natural resources such as sunlight, wind, rain, tides, and geothermal heat (Wikipedia, 2010).

This advocacy encouraged revisiting architectural design traditional thinking processes. This caused a paradigm shift in the architectural design considerations on the level of design priorities and environmental responsibilities. This shift aimed at balancing human needs as the cause with the anticipated environmental effects. This approach supported filtering architectural design decisions through a well-defined scale for energy consumption and emission and environmental sustainability considerations (Wines, 2000).

The spectrum of these architectural design considerations spanned from the applications of conservative building materials and products to the development of strategies of thinking and building processes and procedures.

## **2.2. Sustainable Architecture and Heritage:**

Considering the significant local built environment as green heritage resources provides significant means to employ the potentials of the traditional treatments and offer a chance to avoid mistreatments. By comprehensively exploring the green heritage, it will reveal a reservoir of adaptation efforts that produce lessons learned through history. Heritage contains preserved adaptation knowledge for living creatures to employ in any creation of built environment (Feilden, 2003). Through differentiation, green heritage can offer understanding for a successfully interaction between need, matter and construction. For that, it is rational to support newly built environment to approach sustainability through deriving lessons from local heritage (Burns, 2004).

## **2.3. Orienting Architectural Sustainability towards Heritage:**

For employing sustainability lessons derived from heritage in the contemporary architectural design practice (Earl, 2003), it is vital to start testing the potentials and challenges of this approach within a pedagogic environment. The purpose is to orient the comprehension of sustainability towards utilising the local cumulative knowledge that is transformed to the contemporary generations from the ancestors about the concept of an appropriate built environment (Greene, 2002).

To make this approach possible, the authors supervised a pilot study in the form of design exercise that they introduced to 3rd year students in architectural design to fulfil this purpose.

The details of this pilot study will be described in the following sections.

## **3. PEDAGOGIC CHALLENGE:**

To design a course for pedagogic experience, it is vital to fulfil certain criteria to maintain the integrity of the academic curricula while adding layers of knowledge to attain the intended purpose. For that, it was essential to validate the challenges accompanying this approach.

The conception that differentiates practice from pedagogy is the main validation to be comprehended in this review. The second step is to verify the pedagogic variables in architectural education.

### **3.1 Practice and Pedagogy:**

In architectural education, practice is the main motivation force for improvising pedagogic trends. As contemporary practices are oriented towards innovative approaches for sustaining environment, the pedagogic trends are to be developed concerning the thinking processes, concepts, materials, information models, and construction methods management. As practice prospers through experience, design pedagogy prospers through directed advancement.

### **3.2 Pedagogic variables in architectural design:**

For the purpose of this limited pedagogic experiment, the variables that were under consideration were the curriculum objectives, the student's levels and the time interval. These variables will be discussed in the following:

#### **3.2.1 Curriculum Objectives:**

In academic institutions, the design course is the main container for implementing student's knowledge and skills that he gained in all the offered courses in the related level of study (GJU, 2010).

Design courses usually start on the introductory basic level with introducing basic knowledge of form and composition. The levels then excel toward more sophisticated levels of combining the skills of vision creating, investigation performing, physical, perceptual, and intellectual analysis conducting, concept making, preliminary design introducing, design development executing, and final design achieving including construction detailing, specifications and quantity calculation.

#### **3.2.2. Students number and study level:**

To introduce the values of heritage-oriented sustainability to architectural students, the GJU supervising team decided to expose 18 architecture students of intermediate level study (3rd year level students) to these concepts. At this level, the students were already exposed, in the first and second year level, to the basics of compositions and to the form-function relations and requirements. The knowledge of materials and construction is intermediate. The philosophical thinking of the background theories and history is also intermediate.

At this level, students are to experience employing thinking philosophies, form design briefs and construct design guidelines in order to use them as the base to justify the physical composition of the student architectural creation. The student architectural creation should respond to the project needs and should implement the gained knowledge of materials and construction techniques, while maintaining a controlled guidance of the students own creative ego.

For this level, the supervising team found it wise to expose students to more complex levels of values to support the student with a wider intellectual thinking skills to justify creativity at this level.

### **3.2.3. Time frame:**

The period for this exercise was spanned over a second semester course of four months. Time period was considered as a barrier towards verifying the founded results towards the same experimental variables, as repeating the exercise will not be applicable with the same students due to the time barrier,

Time also reduced the amount of interaction and supervision between students and instructors.

## **4. PEDAGOGIC APPROACH:**

The intended design course goal was to get the students involved in a design exercise (a medium scale project of a BUA of about 5000 m<sup>2</sup> with moderate level of functional complexity) under the faculty and practitioners supervision.

The structure of planned experiment is as follows:

- The pedagogic design process is intended to expose students to understand, think and work within the following three major values:
  - Sustainability
  - Heritage
  - and Environment
- The time frame is considered to be four months (February to May 2010).
- Two studios of four-hour sessions each are conducted to supervise students work each week.
- Four mile-stones are to be carried out for students performance evaluation as follows:
  - Evaluation of the background Researching, site analysis, and functional program development
  - Critique for the conceptual design
  - Evaluation for design development
  - Critique and evaluation for the final design

## **5. EXPERIMENT PERFORMING AND PROCEDURES:**

The supervising team planned the experiment with procedures to fulfil the pedagogic goals and at the same time to coordinate the efforts of the involved parties and allow them to fulfil their professional goals. The details of this planning effort are as follows:

### **5.1. Designing the exercise:**

The supervising team introduced the exercise in a way to challenge the students to design a medium scale project of about 5000 m<sup>2</sup> with moderate level of functional complexity. The suggested Building to be designed was named “Al-Zarqa River Community Centre and Cultural Complex”

The site location was chosen in Janaa- Al-Zarqa of Jordan to expand the design challenge, since this city is the second biggest city in Jordan and it has a unique urban fabric. Therefore,

this will expose the students to understand, think and work in three major aspects: Sustainability Heritage and environment

The current situation for the proposed project location will challenge the student to bring up creative ideas to add another important aspect to the work of the project sponsor, the International Union for Conservation of Nature (IUCN), by implementing a community centre in that area. This implementation will bring into consideration the social aspect to add value to the basic technical project of the river restoration. The 17,000M2 site is now considered a seriously polluted infrequently flowing stream, reduced to a trickle of black liquid and solid waste, running through urban and rural areas. The water has become a danger to the health of living nearby people and livestock. Irrigation by river water creates a serious risk of food contamination, threatening valuable agricultural industries. Habitat for birds, fish and other biodiversity along the river has been destroyed. In a complex circle on interconnectivity, many development impacts are increasing the danger of destroying the river and its entire interrelated ecosystems.

For decades, Al-Zarqa River has been heavily polluted by untreated domestic and industrial wastewater, as well as solid waste. Ground and surface water was pumped for agriculture purposes, reducing surface and spring flow of the river.

Fortunately, many stakeholders are initiating restoration actions. The Municipality of Al-Zarqa Town, Ministries of Environment Water and Agriculture, the International Union for Conservation of Nature (IUCN) (IUCN, 2010) and Regional Water and Dryland Program (REWARD) are working to help restore Al-Zarqa River through a series of planned pilot projects.

This student exercise was intended to add values to current under design project of Al-Zarqa River Restoration sponsored by IUCN.

The supervising team at German Jordanian University (GJU) plan was to let the students focus on creating a new urban space in Janaa'a to connect the people with the restored river and to provide an urgently needed place for people to rest, relax, communicate, while enjoying a greener and cleaner urban environment. The added value that was to be incorporated in the project is to revisit the local traditional architecture to seek for sustainability by referring to local heritage elements of environmental impact.

The time frame was four months starting in the mid of February and ending in the mid of May 2010. This time frame was divided into four major phases:

- First Phase (2 weeks): Comprehending Environment, Heritage and sustainability
- Second Phase (2 weeks): Understanding and analysing the project site, the surrounding context, and the local community
- Third Phase (5 weeks): Introducing conceptual design with a focus on creative sustainable solutions from local heritage
- Fourth Phase (7 weeks): Design development and revisions with the local community, IUCN, and professional architects.

## **5.2. Description of “Al-Zarqa River Community Centre and Cultural Complex”:**

Zarka river is considered the second largest river in Jordan. When looking down at Zarqa river from anywhere along its bank it is hard to imagine that 50 years ago this area was full of water and greenery as people used to perform a lot of life activities related to this river (IUCN, 2010).

As the project is located in Alzarqa town, the vision for this project is to replace the existing industrial area and some quarries along the river with useful facilities that will help the locals to interact as a community and raise the awareness for the heritage of Zarqa River.

In Zarqa town, the municipality mission for this project is to focus on restoring the site into an urban green space, providing an urgently needed place for people to rest, relax and enjoy a greener and cleaner urban environment. Part of this restoration is currently seeking ways to clean wastewater in the river bed, and in maintaining cleaner and more consistent water flow downstream.

Key elements of this project are to develop a built environment to benefit the river restoration effort and to have a strong impact on the society in order to revive that old nostalgia scene that will reserve the memory of the place. This project will accommodate the needs of the local community in terms of creating collective public outlets and spaces for its inhabitants and help institutionalize the local non-governmental initiatives in their respective areas and specialties to provide cultural facilities and other community needs.

The required design (Master plan) consists of three elements:

- **Community Centre Building:** Design for the building intended for raising the community awareness and for having an impact to develop the surrounding area.
- **Outdoor activities:** Design for the surrounding as a complementary for the building and as a link between the site and the surrounding context.
- **Student own thematic solution:** for making the required improvement according to the student point of view for the existed environment, which will include the river and the urban surrounding context.

### **5.3. Introducing the location to students and involving (IUCN):**

The supervising team arranged a meeting in late January 2010 with the project coordinator at the regional office of IUCN Regional Office for West Asia (ROWA) to present the GJU teams vision and added values of the proposed building “Al-Zarqa River Community Centre and Cultural Complex”.

At the first coordination meeting, the GJU team aim was to get the project coordinator attention for the importance of adding an architecture building to link the local community with the river and to add the social aspect to the river restoration project.

IUCN-ROWA has joined the experimentation by supplying GJU team with the previously conducted research work and through connection the team and students with the local authority and community. After the first meeting, IUCN-ROWA arranged for a session with the students to introduce the project location and the previous work. This involvement offered the student a perspective to reality and a feeling of engagement in a real and critical project that touches people’s way of life. In this session, students were encouraged to experience responsibility and partnership through connecting their intended creative design ideas to reality. The students were also inspired to think creatively in the genius loci and location heritage while pursuing sustainability. In this same session, the supervising team also instructed student to anticipate the reality limits of any imaginative ideas.

### **5.4. Introducing the exercise to students:**

At first, GJU team introduced the site location to students without revealing any hints about the project nature or about what they are required to do in this exercise. The team tried to let the students focus on the three main values: Sustainability, Heritage, and environment.

The first exercise that the students were asked to perform was to define these three values. the student were required to study these terms and then present them with a proper solutions of how to implement them in any suggested design.

Parallel to this exercise, the supervising team arranged a visit to the IUCN to introduce the site location to the students. The IUCN project coordinator presented a lecture to introduce the

site and the urban context of Al Zarqa Town. This introduction was essential because most of the students were not aware about the potentials and the constraints of the proposed site.

## **5.5. Studio Work and Work Revisions:**

### **5.5.1. Challenges and Tactics:**

Most of the challenges in students design studio work were concentrated around finding triggering ways to inspire and help the students to think in the added values of heritage oriented sustainability while maintaining the consistency of the standard requirement of the design work at the students study level.

During the entire course, the supervising team repeatedly fine-tuned supervision-delivering methods to give the students the thinking direction needed to accomplish the intended goals for this course.

In the first three weeks, the supervising team found that students were having challenges in understanding the potentials of the suggested site and the proposed project. The students were not sure about how to deal with the site and the theme.

To reduce the student's lack of knowledge and experience in the design process and site analysis, the supervising team performed the following tactics:

- To give the student the required awareness of Jordan and the proposed site environment, studio lecture was delivered by the supervising team.
- To focus on the hidden aspects to let the student make a proper analysis and research, a supervised second site visit was conducted
- To teach the students by offering a debate, supervising team hold several open discussion sessions
- To discuss each student findings in order to orient them to the key points in understanding the site project, the supervising team performed small groups revision sessions
- To give the students the advantage of clearly perceiving the site composition and topography, students were motivated to produce a physical model for the site scale 1:250 by offering five marks bonus on the total final mark for each participating student Physical model requirement

Some of the other tactics that were used throughout the exercise were:

- To break the psychological barrier that was starting to built in front of students in relation to the project added complexity, One of the supervising team actually performed the thinking process of concept making on the white board in front of students
- To test the student abilities for critical thinking, the supervision team enforced sketch design assignment for some part of the requirements for the students to perform in one session time.
- To encourage students to be motivated and to build a background thinking tanks related to heritage and sustainability, students were required to create self-supported visions and to get inspired from the history, the site, the people, the function and the event and to present the visions in any presentation means they control.
- To support students to be realistic, they were required to think three dimensionally using digital virtual presentations and physical model making.
- To keep students balanced between creativity and reality, the revisions were tailored for each student to bounce his work critique between the creativity and aesthetics from one side and structure, function, standards, and material on the other side, until the student reach the midpoint of balancing visions with reality.

### 5.5.2. Studio work and design revisions (time and tasks):

The program of the studio work was planned and tasks were performed as follows:

- Week one:
  - First Session: Course Introduction, lecture by the supervising team about Thinking Heritage Creatively (Fig.1), and performing students groups forming task



**Fig.1 Course Introduction, lecture by supervising team member about Thinking Heritage Creatively**

- Second Session Introduction to the first report, lecture by the supervising team titled " before anything, Layers of Jordan environment"
- Week two:
  - First Session: Students overview for the three given terms "Heritage, Sustainability, and Environment"
  - Second Session: First visit to the project site(Fig.2-3), visit to IUCN-ROWA headquarter in Amman (Fig.4), meeting with IUCN project coordinator, and meeting with a representative from Al-Zarqa Municipality Using the following text, students were asked to write their first impression demonstrating their Vision Grasping Skill:

#### *First Exercise*

#### *\*\*\* Vision Grasping Skill \*\*\**

*In order to exercise the skill of accumulating creative visions for developing design stance and reflections, in this exercise and using your own methods and ways, you are required to express your emotions and thoughts that you developed during site visiting. In your expression, you are required to demonstrate an understanding of the project mission. You can describe the existing situation and you can give spark solutions while you are in the project location in this day. You are free to employ any mean to produce your thinking outcome. It can be a short story, briefing points, expressive sculpting, meaningful collage, impressive poet, evocative scratches, or even some leading key words. Furthermore, you can draw some sketches that express your resolving ideas. Imagine how this place might look like in 2020, after 10 years from today. You can consider the project, the River and the urban context for the whole area. You are free to show optimism or pessimism.*



**Fig.3 First visit to the project site**



**Fig.4 Visit to IUCN-ROWA headquarter in Amman**

- Week three:
  - First Session: Studio discussion, students were asked to write their questions and answers.
  - Second Session: The second supervised visit to the site. Students were supported with available project maps and reports (Fig.5).



**Fig.5 The second supervised visit to the site**

- Week Four:

- Groups delivered presentation for the first phase and supervising team evaluated and commented on their work (Fig.6).



**Fig.6 A group deliver a presentation for the first phase**

- Week Five:
  - First Session: Students submitted site models and the evaluation was not satisfactory. The supervising team required a new optional task for groups to build a new adequate model.
  - Second Session: Starting with conceptual ideas, the supervising team asked the student to present their ideas in a sketch model from
- Week Six:
  - First Session: The supervising team delivered lecture on how to move from site analysis to precept to concept and introduction to the architectural ways of thinking (Fig.7). The supervising team discussed the required submissions for the next phase.



**Fig.7 Supervising team member delivering a lecture on moving from site analysis to precept to concept**

- Second Session: The supervising team checked student's progress, stressing on the disoriented students.
- Week Seven:
  - Juries for all students conducted by external professionals accompanied with the supervising team (Fig.8).



**Fig.8 Juries conducted by external professionals with the supervising team**

- Week Eight
  - First Session: Re-Orientation – Open discussion with all the students
  - Second Session: Lecture by supervising team about (how to move from concept to actual design and how to implement heritage and sustainability in the design). Checking students progress and requiring them to clearly implement sustainability and heritage in their preliminary design
- Week Nine:
  - Individual students reorientation sessions by the supervising team
- Week Ten:
  - First Session: Individual revision session with the supervising team (Fig.9).



**Fig.9 Individual students revision session with the supervising team**

- Second Session: Conducting sketch design assignment before the pre-final submission to encourage student to boost their designs (Fig.10)



**Fig.10 Sketch design assignment**

- Week 11:
  - Students submitted pre-final submissions. Professionals from industry with the support of the supervising team revised and discussed the submitted work with each individual student.
- Week 12:
  - Group discussion, students were required to deliver their individual evolution and notes on the pre-final jury
- Week 13:
  - In this Design Development stage, and with an individual project discussion, students were supervised to go deeply into details with the successful concepts. The conceptually challenged students were motivated and supported to overcome challenges and to boost their work.
- Week 14:
  - In this Design development stage, and with a group discussion arrangement, students were encouraged to brain storming their common challenges under the direction of the supervising team.
- Week 15:
  - Supervising team offered Pre-final last chance orientation to help students in final detailed design and presentation decisions.
- Week 16:
  - The final evaluation and critique session for all students: The supervising team formed the final jury panel that involved professional architects from industry, the GJU supervising team, a team of NGO professionals from IUCN-ROWA, a team of authority professionals from Al-Zarka Municipality, and a team of Community Representatives (Fig.11).



**Fig.11 The final evaluation and critique session for all students**

## 6. CONCLUSION

The conclusion is introduced in the form of images for students final work showing captions of finding and outcomes. The final jury evaluation notes is also introduced to build up towards offering recommendation for this pedagogic experiment as follows:

### 6.1 General Findings and Outcomes

This pedagogic experiment started on February 2010 and ended on May 2010. The findings were in the form of a pedagogic approach to design heritage-oriented sustainability. The details and impacts of the process was observed on the students evolved awareness and understanding of the main values of Sustainability, Heritage and Environment.

The students design work, teaching methodology, project theme, evaluation process, and the whole effort results were under documentation and analysis for pedagogic research purposes.

The students work was intended to give the working teams and decision makers a new perspective to be considered rather than a final product. For that, the students proposals didn't reach the level of consultancy work.

For exercising a complete design process, the time was critical, as it was limited to one semester course time.

This student engagement experience offered support to the community, sense of responsibility and socio-environmental sustainability that oriented the restoration project and added socio environmental values to it. In the future, this exercise expected to open the doors wide for introducing models of restoration that have heritage oriented sustainability concern for other locations.

Main finding out of this exercise was that the majority of the student work showed lack of understanding for the relation between sustainability requirements and heritage involvement. This was justified by the supervising team as that the sustainability requirement in this kind of design exercises for the third year level students is a challenge by itself. Adding the relation with heritage needed more background understanding to the concept of architectural heritage body of knowledge. Another justification was that the information availability and accessibility for the global understanding of sustainability made it easy for students to refer to and to comprehend, while it was a challenge to search for traditional methods of heritage-oriented sustainability as this concept is still unpopular and is not widely revealed.

The following images records are showing some of final evolution process and procedures. Some of the records are showing the resulted output and the way of student interaction with the exercise.



**Fig.12 One of the students conceptual design proposals**

Some of these proposals were introduced using traditional materials and traditional construction methods to reach sustainability through imitating heritage



**Fig.13 One of the students conceptual design proposals**

Some of these proposals were not clear and were introduced out of context



**Fig.14 One of the students conceptual design proposals**

Some of these proposals were imaginative and were introduced using new materials with innovative construction methods to reach sustainability through the inspiration of heritage



**Fig.15 The final jury sessions**

This session indicated the level of students understanding of the project requirements and the amount of support they received from the supervising team.



**Fig.16 Students were allowed to express their ideas verbally**

This discussion approach offered the students the chance to support their presented work through communicating convincing argument.



**Fig.17 Students were instructed to interact with open-minded attitude**

By this opportunity, students gained good communicating skill training and were able to respond positively to the jury's critiques.



**Fig.18 Students used the unified site model to insert their own building model in**

This unified model was produced by one group that was motivated to gain extra credit for spending extra effort for this optional model



**Fig.19 Students were allowed to introduce their final work on boards**

They used their preferred means of presentation media which gave the students the advantage of controlling the output esthetic appearance level

## 6.2. Final jury evaluations and notes

All the evolved teams including GJU supervising team, Professional from industry team, IUCN-ROWA team, Al-Zarka Municipality team, and Community representatives, provided the final jury evaluation notes. The notes for these all teams are as follows:

### 6.2.1. Supervising team notes

The GJU supervising team notes were based on following clearly established evaluation criteria:

- Pertinence in problem identification and its relation to the function
- Consistency in the design solution and approach throughout the project
- Relevance of heritage oriented sustainability in the focused and enlarged context
- Capacity of clearly stating intentions and proposals and
- Architectural quality of the proposed design solution
- After carefully assessing all projects, the outcome in general was as follows:

**Table.1 A description of different students categories**

Students Evaluation Category	Number of students	Evaluation Justification and General Observations
A	Five students 28%	The student had come up with an innovative design solution that can be developed to a real project. The student had implemented his/her initial research findings and interpreted it as guidelines into an architecture language. On the conceptual level, the student sufficiently incorporated the value of heritage-oriented sustainability. The work shows some previously expected practicality challenges on the design level. Generally, the design showed a good understanding of the urban context and the proposed project program. In conclusion, the student of this

		level did his/her exercise properly. The level of the student in this category is considered above average.
B	Seven students 42%	The student was rational in his/her design solution. Interesting design idea can be traced when looking thoroughly into the design solution. On the other hand, the student overlooked important key elements, either in the function requirements, in the masses composition, in the relation to the site, in involving sustainability value, in clearly expressing the design verbally, or in the board presentation product. In conclusion, the student of this level did his/her exercise fairly. The level of the student in this category is considered average.
C	Six students 30%	The student had demonstrated poor understanding for the required task in this project. Students problem-solving capabilities were modest. The project was out of context. The student neglect more than one critical key component either in the function integrity, in the masses basic relations, in the location in the site, in offering subjective values, in communicating the design verbally, or in the board presentation product. The level of the student in this category is considered below average.

These results were based on the supervising team subjective evaluation of student design outcome.

### 6.2.2. Professionals from industry notes

The general consensus of the professionals from industry is that the students are relatively well-versed in the techniques of visual graphic presentation and their architecture solution. However, much of the students design work produced by third year students is highly formalistic and focuses on visual impacts and stimuli. In such work, clarity and discipline often are absent, and ambiguity prevails. The ordinary, silent, and neutral are feared; clutter often dominates in both design and presentation.

Under such circumstances, architectural representation techniques that denote basic design skills and delineate careful planning, spatial qualities, and materiality suffer greatly. Moreover, while a project may begin with very promising diagrams and sketches, these often are not developed fully or seriously, and, in many cases, function and urban context is sacrificed for the sake of form.

Some student designs therefore are intended to impress at first sight and provide a degree of “shock value” through exhibitionist presentation techniques. These techniques often consist of collages of images that incorporate a multi-layering of forms, colors, and lines, and that do not adequately reflect the physicality and materiality of architecture.

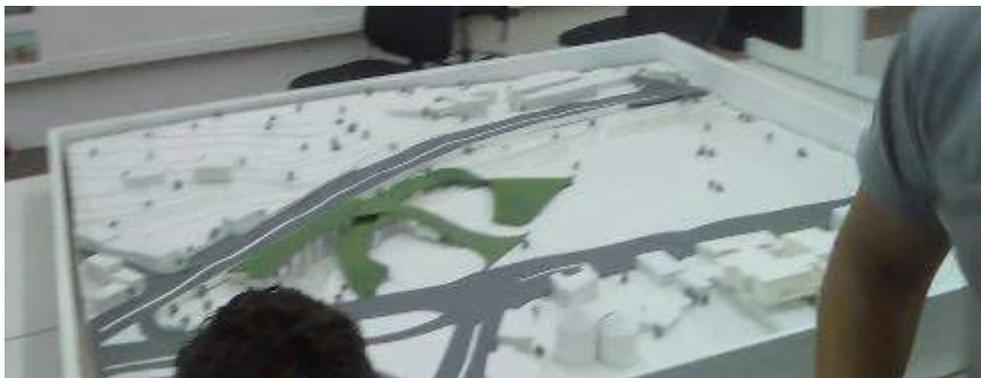
Issues relating to physical, technological, social, environmental and cultural contexts are to a great extent still absent, resulting in what may be referred to as a state of disconnection between the architectural design process and architecture as built form.

### 6.2.3. IUCN-ROWA notes

The IUCN-ROWA jury committee members were impressed by the overall product, which was presented by the students. The IUCN-ROWA project coordinator assured that every student has a unique idea that can improve the existing design for the proposed project. Furthermore, the committee members were interested to bring some ideas into live by expressing their intention to apply some of these ideas in the active restoration project.

On the other hand, IUCN-ROWA committee was not satisfied for that most of the proposed building solutions were disturbing the visual accessibility and connectivity with the river body it self, which will contradict with the concept of creating a green lung within the condensed urban area in that location.

The physical model of the site was used to demonstrate the students design ideas by inserting the building models proposed by the students into the unified site model. IUCN-ROWA appreciated the gesture of GJU students for awarding this site model to be located in IUCN headquarter building at Amman to present the GJU student effort depleted for this project (Fig. 20).



**Fig.20 The unified physical model of the site**

This model was used to demonstrate the students design ideas by inserting the building models proposed by the students into it

### 6.2.4. Al-Zarka Municipality notes:

Al-Zarka Municipality committee as representing the authority were satisfied with the idea of this experiment. The Authority representatives were impressed by the overall outcome. They encouraged the students to think and study more about the abandoned areas like this site. The notion of going deeply into learning lessons from traditional heritage to support sustainability was appreciated and supported in order to preserve the local culture identity and the character of Al-Zarka city.

### 6.2.5. Community representatives notes:

At the start of the jury, the community representatives expressed that they did not expect a building in that area. They were not aware about the importance of the community centre. According to them, they believe that this district needs more green areas and open relation with the River mass. Throughout the jury some ideas were satisfying the visual and perceptual relation with the river without compromising the open green areas around it while maintaining the integrity of the function for the building. Some ideas were underground some were less massive with green building materials.

At the end of the jury, the community representatives appreciated the concept of having a building for the community to strengthen the sense of partnership and liability for the river restoration effort. This appreciation was supported by the demonstrated applicability of the some students proposed design ideas to keep the relation between the public and the river. The understanding of the critical relation between sustainability and local heritage was established based on some student's proposals.

### 6.3. Recommendations:

After conducting this experiment, the related recommendations are the following:

- There is a need in academic institutions to introduce more related subjects to human basic needs
- It will be helpful to use simulation modelling to virtually expose students to the effect of using heritage elements
  - In the third year level of studying architectural design, it is recommended to concentrate on one element to help students understand and comprehend
  - The three dimensional representation can add to students learning experience to understand the complexity of architectural design components through the use of modelling machines and physical illustrations.
  - In these kind of added complexity design exercises, it is essential to initiate deepening philosophical thinking in heritage by offering pre-design courses and history lessons and traditional construction logics
  - It is recommended to offer these kind of added complexity design experiments on selected students of higher study levels or noticeably motivated students.
  - The approach to conduct experiments to relate the heritage to innovative design trends is highly recommended to reserve the architectural identity and characteristics to the communities.
    - It helps to involve professionals and theorists in workshops with students to rise the awareness of heritage and its location in design process.
    - It is critical to relate the innovative design processes to the local practice traditions.
    - For this kind of exercises it is essential to connect design courses with construction, theory, history and virtual media labs to get solid output.
    - It will help the students are exposed to a more objective critique methods
    - It is important in these kind of special awareness topics to get more parties of the stake holders involved and to connect with a more NGOs to architecture related.

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