CONTEMPORARY QATARI ARCHITECTURE AS AN OPEN TEXTBOOK

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Abstract

This paper advocates the integration of research into undergraduate architectural education by arguing for the exposure of students to primary source materials that enable them to get as close as possible to the realities being studied. It introduces the concept of "utilizing the built environment as an open textbook" by outlining a framework within which an impressionistic approach for evaluating the built environment through experiential learning can be incorporated. It argues for exposing students to primary source materials and for educating them about the production of knowledge. The papers outlines an approach for learning from Qatari architecture by conducting procedural evaluation of ten buildings identified based on discussions with students. Findings indicate that students were able to make judgments about the built environment and to give reasons for those judgments. However, students' analyses reveal shortcomings in their abilities to comment, where some could not express their concerns verbally while few could not write an understandable reporting statement. Students' feedback on this experiment reveals that this approach helped them recognize what to look for in the building, understand relationships between different design factors, while comprehending the impact of one factor over others. Based on these results the need for incorporating evaluation research through experiential learning into architectural pedagogy is emphasized.

Keywords

Architectural education, architecture as an open textbook, evaluation research, experiential learning, Qatari architecture, lecture courses.

Introduction

Recent concerns about undergraduate education in universities present new opportunities for us as academics to strengthen our programs, to enhance our role in shaping undergraduate education, and to improve the quality of that education. Notably, these concerns are not new; they have emerged in one form or another, from early reform efforts by John Dewey and Alfred Whitehead to the experimental colleges of the 1960s. However, in the last few years, the level of concern has intensified and the flood of reports and position papers has crested at an alarmingly high level. Reports with catchy and compelling titles continue to roll off the presses with increasing regularity. Examples of these titles are: "*Shaping the Future: New Expectations for Undergraduate Education in Science, Mathematics, Engineering and Technology*," and "*UNESCO Declaration on*

Higher Education." The reports, in turn, have generated intensive discussions in the literature of just about every discipline. Most important is not the quantity, but the focus of this new round of debate: an emphasis on issues central to our own mission that simply involves the development of research skills and critical thinking abilities through active learning.

A visionary report was published in 1998 by the Boyer Commission: *Reinventing Undergraduate Education: A Blueprint for America's Research Universities*, establishing links between many of the concerns in a well-developed critique of undergraduate education. The report's conclusions, while aimed at research universities, apply to most institutions of higher education worldwide, whether classed as research institutions or not (BCEURU, 1998). According to Schaffner *et al.* (1999) since the release of the report, it has been a catalyst for discussion, defensive action, and reform at many institutions. For the discipline of architecture, similar reports have been introduced to the international community including *"UIA-UNESCO Charter of Architectural Education-1996",* the Carnegie Foundation's report on *"A New Future for Architectural Education and Practice-1996"* and the AIAS report on "*the Re-design of Studio Culture-2002*". These reports indicate that undergraduate education does not take full advantage of the unique opportunities available in higher education institutions. Links between undergraduate education, professional practice, and faculty research are often oversimplified; opportunities to enrich and strengthen undergraduate education through exposure to the research process are missed.

Along the same thinking of the preceding debates, this paper advocates the involvement of undergraduate architecture students in research by introducing a framework within which experiential learning and evaluation research can be incorporated into architectural pedagogy. It argues for exposing students to primary source materials, and for educating them about the production of knowledge. This is proposed in order to complement traditional teaching practices that emphasize secondary source information and the consumption of knowledge by offering students ready-made interpretations in theory and lecture courses. Primary sources enable students to get as close as possible to the realities being studied and to what actually happened (is happening) during a historical event or time period.

The methodology adopted in this paper is multilayered and ranges form reviewing the recent literature on undergraduate architectural education by conducting a preliminary inductive analysis to actual experimentation. The aim is to conceptualize a problem statement in the form of idiosyncrasies and misconceptions about knowledge acquisition and production in architectural education. Rather than developing criticism against current norms of architectural education teaching practices, an argument is developed in a manner that focuses on how evaluation research and experiential learning can be integrated into architectural pedagogy. Such an argument is contextualized in an experimental mechanism and implemented in a beginning introductory course in architecture at Qatar University in order to articulate how the desired integration can be achieved.

Idiosyncrasies in Architectural Pedagogy

There has been—and still is —a continuous debate among architectural educators about the role of knowledge and research in architecture as a discipline and profession (Salama 1996; Sutton 1984). Whether in developed or developing countries, many in architecture still think of researchers as people in white smocks and thick glasses searching for the mystery and the unknown. In response, scholars and educators have emphasized that research should be viewed as part of everyday actions and experiences. They argue, and rightly so, that traditional teaching practices have long encouraged students to develop form manipulation skills by emphasizing intuition, reflective observation, and concept formation (Juhasz 1981; Salama 1995; Sanoff 2003; Seidel 1994). However, these practices are hypothetical, largely unconcerned with real life situations, neglecting equally important skills that can be enhanced through experiential learning, research, or real interaction with the realities being studied.

In traditional teaching practices, architecture students are typically encouraged to conduct site visits and walkthrough the built environment in order to observe different phenomena. Unfortunately however, research indicates that these visits and exercises are simply casual and are not structured in any form of investigation or inquiry (Salama 1995, 1996, 2005, 2006). As a result, students do not realize what to see and what to look for in the built environment. The case would be worse when educators attempt to offer students ready made interpretations about the physical world in lectures and seminar classes, leading to students' inability to think critically or develop their intellectual skills. This handicaps their abilities to gather, analyze, synthesize, and process different types of information. Traditional teaching practices have contributed to the view of architecture as an art-based profession oversimplifying other critical views of it as a knowledge-based or research-based educational discipline and profession (Salama 2007). In response, current discourses have heavily emphasized the value of knowledge acquisition and of the introduction of research based pedagogy (Fisher 2004; Groat 2000).

While architectural educators strive to impart the requisite knowledge necessary for successful practice, the way knowledge is transmitted has significant professional and social implications (Mazumdar 1993; Salama 1998). Concomitantly, there is an urgent need to confront issues that pertain to the nature of reality ("what") and the way in which knowledge about that reality is conveyed to our budding professionals ("how"). Traditional teaching practices suggest that gaps exist between "what" and "how". Along this line of thinking, Amos Rapoport (1994) argues for the need for the discipline of architecture to develop a quantifiable body of knowledge by calling for a dramatic departure from the art paradigm that the profession and its education are based upon to one based on science and research. Rapoport introduced a number of questions underlying the heading of *"knowledge about better environments"*; these are: *"what is better, better for whom and why is it better?"* (Rapoport 1994:35). A set of misconceptions can be envisaged in this context based on reviewing the recent literature on architectural education and on

investigating the results of a number of surveys of architectural educators (Salama 1995; Salama and Wilkinson 2007; Seidel, Eley, and Symes 1995).

Science as a body of knowledge versus science as a method of exploration

When teaching any body of knowledge, educators tend to present it as a body of facts and theories and as a process of scientific criticism. The processes that led up to this product are always hidden and internalized. There should be a distinction between the types of knowledge resulting from research in architecture and students should be made aware of them and experience them as well. First, knowledge that results from research that seeks to understand the future through a better understanding of the past, research that tests accepted ideas. Second, knowledge that results from research that develops new hypotheses and visions, research that probes new ideas and principles which will shape the future.

Learning theories about the phenomena versus getting the feel of the behavior of the phenomena

Knowledge is usually presented to students in a retrospective way where abstract and symbolic generalizations used to describe research results do not convey the feel of the behavior of the phenomena they describe (Schon 1988). The term retrospective here means extensive exhibition of the performance of the work of an architect over time. In essence, the analysis of precedents as part of the curriculum should be introduced. How projects were created and in what context, what was the client nature and intentions, how the project was delivered, and how construction was undertaken are integral parts of learning. The story telling teaching mode carried out by educators in lecture and theory courses tends to ignore these issues.

The real versus the hypothetical

Educators tend to offer students hypothetical experiments in the form of hypothetical design projects where many contextual variables are neglected. In this respect, learning from the actual environment should be introduced. Real life experiences can provide students with opportunities to understand the practical realities and different variables that affect real-life situations. Typically, educators focus on offering students ready-made interpretations about the built environment rather than developing their abilities to explore issues that are associated with the relationship between culture and the built environment. If they do, they place emphasis on one single culture, which is their own.

In the context of discussing the preceding idiosyncrasies, it should be noted that recent years have witnessed intensive discussions on the value of introducing real life issues in architectural education teaching practices (Morrow 2000; Morrow *et al.* 2004; Morrow 2007; Romice and Uzzell 2005; Salama 2006; Sanoff 2003, and Sara 2000). However, while published experiences have debated innovative practices exemplified by exposing students to primary source materials in studio processes, little emphasis has been placed upon how real life issues could be introduced in theory and lecture courses.

Architecture as an Open Textbook: Incorporating Evaluation Research into an Experience Based Pedagogy

The concept of "utilizing the built environment as an open textbook" is not new; it has been introduced in different ways into studio teaching by adopting community design and development or participatory approaches (Sanoff 2003). Over the past few years there have been critical voices to incorporate such a concept in different learning settings at pre-university level. Notably, the "Sustainable Building Industry Council" advocated the integration of the school building facility into teaching (SBIC 2001). However, the discussion underlying the idiosyncrasies in architectural pedagogy coupled with a closer look at architectural education teaching practices (Salama 2005, 2006-b) reveals that very little attention has been given to ways in which the built environment can be utilized as a teaching medium in theory and lecture courses, only through casual site visits or field trips. Therefore, there is a need to examine how architecture, the built environment or a portion of it can be integrated into structured learning experiences. In essence, evaluation studies can be seen as a mechanism that fosters a desired integration.

Evaluation is an area of research and a mental activity devoted to collecting, analyzing, and interpreting information. Evaluation studies in architecture are intended to provide reliable, useful, and valid information. Evaluation literature conveys three major objectives of evaluation research that can be exemplified by developing a database about the quality of the built environment, identifying existing problems or needs and their characteristics, and providing a basis for predicting the quality of future environments (Zube 1981).

Several education theorists including Benjamin Bloom; David Kolb; Jean Piaget; John Dewey; and Paulo Freire voiced the opinion that experience should be an integral component of any teaching/learning process. Experiential learning thus refers to learning in which the learner is directly in touch with the realities being studied (Keeton and Tate 1978). It is contrasted with learning in which the learner only reads about, hears about, talks about, writes about these realities but never comes in contact with as part of the learning process. Mistakenly, some educators equate experiential learning only with "off campus" or "non-classroom" learning. However, in architectural pedagogy a class in history or theory of architecture might incorporate periods of student practice on theory exercises and critical thinking problems rather than consisting entirely of lectures about theories of architecture and the work of famous architects (O'Reilly 1999; Salama, O'reilly, and Noschis 2002). Similarly, a class in human-environment interactions might involve critical analysis exercises on how people perceive and comprehend the built environment. Both classes might involve field visits to buildings and spaces where students are in close contact with the environment, exploring culture, diversity, people's behavior, and be part of that environment. All of these mechanisms involve an experiential learning component.

Learning through experience involves not merely observing the phenomenon being studied but also doing something with it, such as testing its dynamics to learn more about it, or applying a theory learned about it to

achieve some desired results. Evaluation as a valuable research vehicle needs to be introduced both in lecture courses and design studios, establishing a knowledge base about the built environment that has the capability of endowing students with more control over their learning, knowledge acquisition, and design actions and decisions (Salama 1998 and1999). This argument corresponds with a recent argument introduced by John Habraken when he argues that:

We need to teach knowledge about everyday environment. How it is structured, what we can learn from historic and contemporary evidence, how different examples compare, how it behaves over time and responds to change of inhabitation or other circumstances... Teaching architecture without teaching how everyday environment works is like teaching medical students the art of healing without telling them how the human body functions. You would not trust a medical doctor who does not know the human body. Knowledge of everyday environment must legitimize our profession... (Habraken 2003: 32).

Linking evaluation research and experiential learning, one can argue that architecture students need to be involved in evaluation processes that should be conducted objectively and systematically - not through casual interviews or observations that may only reveal what is already known. In this context, they learn about problems and potentials of existing environments and how they meet people's needs, enhance and celebrate their activities, and foster desired behaviors and attitudes. In this respect, it is noted that while there have been several attempts to incorporate evaluation research into architectural pedagogy, it would appear that they did not go beyond individual attempts of committed scholars and educators. Thus, one could argue that traditional teaching practices do not utilize experiential learning as a tool that addresses the dialectic relationship between people and their environments and that helps students understand and comprehend the multifaceted nature of buildings.

A Context for Integration

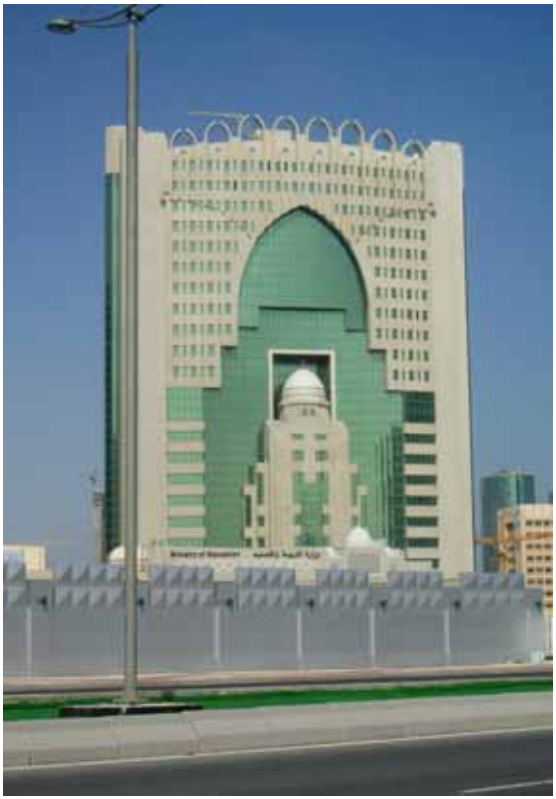
In order to contextualize the preceding argument, a procedure for integrating evaluation research through experiential learning was designed and implemented within the context of Qatar. This section sheds light on how such a contextualization was undertaken.

Architecture of Qatar and the emergence of a global city

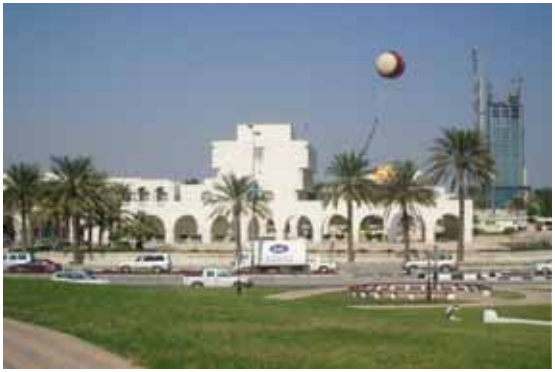
The major city of Qatar is Doha, a capital with more than 90% of the population of the country that reached a little less than a million including professionals from other countries. Historically, Doha was a fishing and pearl diving town. Up to the mid 1960s, the majority of the buildings were individual traditional houses that represent local responses to the surrounding physical and socio-cultural conditions. During the 1970s the city has witnessed great transformation into a modernized city. However, in the 1980s and early 1990s the development process was slow compared to the prior period due to either the overall political atmosphere or the reliance of the country on the resources and economy of other neighboring countries.

The recent rapid development of Doha is associated with a fast track urbanization process, marked by large scale office towers and mixed use developments. In its modernization process

and the attempt to follow the city of Dubai as an example of a global urban image, the city has adopted international building standards, state of the art glass towers with few attempts to fuse the modern with the traditional (Fig. 1-a, b, and c). The government is supporting large-scale infrastructure projects and high profile institutional and cultural building projects, the majority of which are designed by name international firms and star architects. Despite the merits and demerits of the swift urban development process and the resulting architecture, the built environment of Qatar represents a rich soil and a unique opportunity for architecture students to learn from.



a. Ministry of Education, Doha, Qatar



b. Qatar National Theater

c. Doha Waterfront Development.

Figure 1: Representative Views of Contemporary Qatari Architecture in the City of Doha (Source: A. Salama).

Impressionistic evaluation tool

In order to introduce the procedural evaluation mechanism, a survey of multiple factors building appraisal tool was designed; the purpose of which is to develop students' ability to have control over their learning by establishing links between visual and functional issues of a building or a group of buildings. The exercise is devised to facilitate a deeper understanding of the built environment through self-guided tours. The tool is structured in terms of checklists underlying six factors offering students a procedure for taking a structured walkthrough and around a building. The evaluation strategy in this context is considered to be impressionistic which increases students' awareness by focusing on specific factors (Sanoff 1991). The six factors involve *context, massing, wayfinding, interface, socio-spatial and comfort aspects*. Checklists are phrased in the form of questions underlying each factor. Questions are designed in a generic manner that reflects the essence of each factor. Numerical scores are assigned to the questions to represent the degree of appropriateness underlying each factor using a point scale method. Scores are averaged and an overall score for the building is then computed (Tables. 1). The experiment was implemented in an introductory lecture/ theory course in architecture titled *Principles of Architectural Design*.

Context	
H inappropriate 1 2 3 4 5 H appropriate	*Photographs or other forms of illustrations that represent the factor of "Context"*
____ 1) How does the building suit the pattern of the surrounding streets? ____ 2) How does the scale of the building suit the site it sits upon? ____ 3) How does the scale of the building suit the scale of the surrounding buildings? ____ 4) How does the scale suit the character of the neighborhood? ____ 5) Do the public and private areas relate well to one another? ____ 6) Do the land uses adjacent to the building seem to fit harmoniously with the building? ____ 7) Does the type of building and its intended use fit well with the type and uses of adjacent buildings? ____ 8) Does the appearance of the building fit in well with the type of buildings surrounding it?	
Average Scroe (Total/8) _____	
A Summary paragraph should be written describing how well the design of the building has addressed the factor of "Context"	

Table 1: Example Sheet Utilized to Conduct the Self Guided Tour

Implementation

The implementation process for utilizing the evaluation mechanism to investigate the buildings involved a number of steps that started with presenting brief descriptions of a large collection of over 25 buildings representing contemporary architecture of Qatar. After discussing the buildings, their clients, architects and designers, students were given the choice to select the building they wish to experience and evaluate. This procedure involved two class sessions and resulted in identifying team members and ten buildings (Fig. 2). The procedures and requirements for conducting the evaluation were developed in the following terms:

- Students were divided into ten teams based on selecting their peers, each of which was formed of three students. The team conducted a walkthrough exercise utilizing the multiple factor building appraisal tool. The process included the use of notes, sketches, diagrams, and verbal description.

- Students' attention was drawn to the fact that the list of questions underlying each factor is not exclusive and is introduced to help structure and guide their tours for the purpose of the exercise.

- Students were required to develop a presentation and a report that would consider the following:

  - Description of the building appraised with the support of written of materials, photographs and illustrations;
  - Conducting one or two visits to the building under investigations to develop initial reactions;
  - Appraisal of the building using the checklists with numerical scores assigned for each question;
  - Analysis of numerical ratings by computation of an average score for each factor and for the overall score; and
  - Writing comments or remarks based on their impressions and understanding of the building.

It should be noted that the implementation of the tool was preceded by a brief description of each factor and a discussion of the checklists and the questions underlying each factor. It is also noted that each student in a team was required to give scores to each question individually. However, the final evaluation submitted by a team is calculated as an average of the scores of each team member.

Presenting the results to student teams

After submitting the reports, each team presented the building evaluation results to the whole class in a ten minute presentation, followed by a brief discussion and interpretation of the results. Next, in the following class session the instructor presented the compiled results of the ten buildings based on students' evaluations. This was followed by a class discussion where students were asked to comment on the buildings and the overall experiment. While the purpose was not to generalize the results, it is believed that presenting the compiled results provided students a unique opportunity to debate the scores given to the factors of the buildings evaluated by other teams.


a.


b.


c.


d.


e.


f.


g.


h.


i.


j.

a. Al Sadd Club
b. Atheletes Village
c. Barzan Tower
d. LAS Building,QF
e. Q Post Office
f. Islamic Center
g. Mercedes Benz HQ
h. Diplomatic Club
i. Ras Alnassa'a Restaurant Complext
j. Cornell Medical College, QF

Figure 2: Ten Buildings Representing Contemporary Qatari Architecture to be Utilized as Open Textbooks.
(Source: all photographs were taken by Qatar university students, architectural engineering program, November 2006).

Discussion: Findings and Limitations

The findings point out that the students were able to make judgments about the built environment and to give reasons for those judgments. However, their analyses reveal some shortcomings in their abilities to comment, where some of them could not express their concerns verbally and could not write an understandable reporting statement. Also, a few students were not able to recognize similarities and differences between the questions. However, they commented that checklists and survey tools for investigating the built environment helped them recognize what to look for exactly in the building and to understand relationships between different factors, while comprehending the impact of one factor over others.

Students reported that they were excited during the walking tours conducted to evaluate the building by scoring different factors. In their comments, the majority felt that their experience of the building invigorated their understanding of many of the concepts typically delivered in a lecture format without exposure to real life situations. As well, writing and presenting were felt as important skills they need to further develop. The interpretation session where the overall evaluation results were presented corroborates the value of integrating experiential learning mechanisms while creating an atmosphere amenable to responsive reflection and critical thinking.

The two widely held conceptions of architecture, the conceptual/subjective and the physical/objective are embedded as important components in the process of utilizing the multiple factor tool in building evaluation. Therefore, this experiment attempted at developing students' understanding of how relative concepts or qualitative aspects of the built environment could be transformed into quantifiable measures. In this respect, two important limitations should be clarified:

• While the experiment is aimed at introducing structured experiential learning through some form of evaluation research, it does not provide comprehensive panacea to the misconceptions that characterize traditional teaching practices.

• The experiment does not address the complexity of architecture nor does it involve a comprehensive set of factors that needs to be addressed to evaluate a building or a portion of the built environment. However, discussion and comments of students reveal that it helped them focus on specific aspects in the building they evaluated while attempting to bridge the gap between "What" and "How."

A large portion of students' education is based on "lessons from the past". Students are typically encouraged to study the existing built environment and attempt to explain it through theories or typologies, always looking at outstanding examples. However, underlying these theories, there are assumptions about the built environment and the people associated with it, and usually these assumptions remain hidden. It is in this relationship lies the "lesson" to be learnt. Whether people associated with the environment were the actual users of it or were students acting as observers and users at the same time, the incorporation of a procedure similar to the one introduced in theory/lecture

courses would foster the establishment of links between the existing dynamic environments, the concepts and theories that supposedly explain them, and the resulting learning outcome. Concomitantly, the inherent, subjective, and hard to verify conceptual understanding of the built environment is complemented by the structured, documented interpretation that is performed in a systematic manner.

Conclusion

The objective of this paper was to suggest ways in which experiential learning can be introduced in architectural pedagogy. Based on the analysis of the literature, a problem statement was developed in the form of a number of misconceptions inherited in traditional teaching practices. Some tendencies appear to continue to shape traditional pedagogy; these can be exemplified by offering students fragmented knowledge as a product of inquiry - not examining the processes that led up to this product, providing students with ready made interpretations about buildings and built environments as secondary sources of information, the avoidance of dealing with real life conditions, and the missed opportunity of exposing students to structured evaluation research. While these misconceptions vary from one country to another, from one school to another, or even from one academic to another in the same school, the analysis of recent literature corroborates that - in generic terms - they continue to characterize the teaching process of architecture world wide.

As a positive response to these misconceptions and within the context of the State of Qatar an experiment that integrates experiential learning and impressionistic evaluation research was designed in the form of a multiple factor building evaluation tool. Supported by structured class sessions, student teams conducted evaluations of ten buildings for which the results were developed in report and presentation format. Results were brought to the class for critical discussions and reflection. The results of implementing this procedure accentuate the value of incorporating structured learning tools in theory and lecture courses. In the context of this procedure the building or a portion of the built environment are acting as an educational medium.

The built environment is variant, diverse, and complex. Buildings and spaces are major components of this environment: planned, designed, analyzed, represented, built, lived in and occupied. They are also experienced, perceived, and studied. They should be re-defined as objects for learning and need to be transformed into scientific objects. In this respect, one should emphasize that in order for an object to be taught and learned, its components should be adapted to specific pedagogic and cognitive orientation that introduces issues about specific factors. It is the perception and position of this author that the incorporation of research into undergraduate architectural education represents a true frontier. Concomitantly, it is firmly believed that introducing and implementing tools that utilize the built environment, buildings, and spaces as a teaching tool and as open textbook foster the capabilities of future architects to be critical thinkers while designing new buildings or introducing any change in the environment.

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