

Table of Contents

Acknowledgments	i
Table of Contents	iii
Editor's Preface	vii

Digital Design Education

In Quest of Space – Digital Technology in Architectural Design Education Jan Frohburg & Frank Petzold	3
Exploiting Familiar Media: Using Interactive DVD for Architectural Presentations <i>Kim de Freitas</i>	17
Expanding Architectural Education: A Digital Alternative for Participative Design <i>Rashidah Ab Rahman</i>	27
Make a Case – Digital Collections of Precedents in Architectural Education and Design <i>Katharina Richter, Dirk Donath</i>	41
Cadavre Exquis – Exquisite Corpse – 2006 <i>Antonio Serrato-Combe</i>	51
For_getting Drawing: Toward an Architectural Pedagogy for Digital Media <i>Marshall Brown</i>	59

Integration of Studio with other Teaching

The Curricular Integration of Graphic Design and Architecture <i>Barbara Ambach</i>	83
Rethinking the Design Studio: Art + Architecture – a Case Study of Collaboration in an interdisciplinary Context <i>Steffen Lehmann</i>	91
A New View on Architectural Design Studio; Comprehensive Studio <i>Mehran Gharaati K.</i>	107
Didactic Interventions: Examples of the Practice of Installation in Architectural Education and Research <i>Nadia Mounajjed</i>	115
Energy and Environment Based Architectural Research and Design Studio <i>Mahjoub Elnimeiri, Tallal Saeed & Pravin Bhiwapurkar</i>	127

Supporting Distributed Design Education

- Design Collaboration on the Web – The History of VDS to u-Studio
Masahiro Saji, Y. Matsumoto, R. Naka & S. Yamaguchi 143
- A Novel Form of Distributed Interdisciplinary Project-Based
Architectural Design Education
Christoph Holliger, Daniel Kündig¹, Fritz Häubi & Peter Bölsterli 157
- Eucalyptus: Intelligent Infrastructure Enabled Participatory Design Studio
*M. Jemtrud, M. Brooks, B. Ho, S. Lui, P. Nguyen,
J. Spence & B. Spencer* 167
- Enhancing Design Education with Gaming Engines
Michael Hoon 179

Digital Visualisation and Design Teaching

- Digital Technology and Architectural Design Education –
Supporting Complex Design Scenarios through the Use of CAAD Tools.
Dirk Donath & Christian Tonn 191
- Virtual Reality and Learner-Centered Pedagogy: Technology's New
Role for the Architectural Engineering Students
Mohammed E. Haque 205
- Diagraphics: Exposé Parts 1, 2 & 3 – digital Diagramming and
Visualization Techniques
Barbara Ambach 217
- Developing an Efficient presentation Techniques in the Era of Computers
Ibrahim Mubarak Alnaimi 231
- Pedagogic Strategies and Virtual Models of Urban Fragments
Julio Arroyo, Mauro Chiarella 245

Theoretical Issues in Learning and Teaching Design

- Theoretical Speculations and the Design Studio
Elie G. Haddad 255
- Architectural Practice and Academia: the praxis and theoria continuum
Keith Ballantyne & Leonidas Koutsoumpas 267
- Architectural Education as a Gate For "Glocal Architecture"
In Egypt: A Proposed Approach
Khaled Galal Ahmed 281
- A Critical View of Architectural Design Education in Algeria
Samira GaiD & Fadila Kettaf 299

Creativity and Critical Thinking

- Focus on Architectural Design Process Through Creative Thinking
Measures: An Evolutionary Connection?
Ayla Ayyıldız Potur & Ömür Barkul 311
- A Paradigm Shift: “Flow” and the Act of Creation as the Foundation of
Design Education
Rodney Culver Hill 325
- Student’s Creativity between Traditional And Digital Methods in
Design Studio
Yasser A. Farghaly 333
- Teaching to Think: Discovering Principles through Practical Inquiry
Kevin Mitchell 345
- When Narration Meets Architectural Design Education
Susan Habib & Mohammad Ebrahim Ja'fari 355

Alternative Studio and Design Built Studio

- Incubating Sustainable Architecture: Think-Tank Networks on
Cooperation and Progressive Research
Marcia Codinachs, Katarina Mrkonjic & Cristian Suau 379
- Constructing Knowledge: Synthesizing Fabrication and
Design in Architecture Education
Andreas Luescher 389
- Service Learning in the Global Community
Kelley Beaverford 403
- Temporary Space Permanent Knowledge
Jeffrey Haase 415
- Building Consensus In The Design Build Studio —
Design Build 101: The Neighborhood Design Build Studio
Steve Badanes 435
- Defining an Innovative Architectural-Construction Integration
Design Studio for Sustainable Global Practice
Rahinah Ibrahim, Renate Fruchter, & Roslina Sharif 441
- Problem-Based Project-Oriented Learning: Educating and evaluating
For new disciplines emerging in the interplay between the professions
of civil engineering and architecture
Michael Mullins 455

Reflections on Architectural Design Education

- The Development of Values in the Studio: A Hidden Curriculum?
Andrew Roberts, Martin Pearce, Oren Lieberman & Walter Matsika 469

Reflections on Design Juries <i>Elif Tandogan Tural & Mehmedalp Tural</i>	483
Worlds That Are Shifting, Ideas That Persist: Johannes Itten's Method of Teaching Composition <i>Iakovos Potamianos</i>	499
Professional Experience: its place in the architectural curriculum <i>Andrew Roberts</i>	515
Terminal Design Studio Administration: Comparative Practices from Bahrain and Ohio <i>Salim Elwazani & Souheil El-Masri</i>	529
Teaching and the Studio	
Towards a Multimodal and Media-Rich Support Environment for Beginners' Design Studios <i>Antonieta Angulo</i>	549
Getting Design Teaching into Shape: A Systematic Approach to Design Pedagogy <i>Nicolai Steinø</i>	563
Learning Design Teaching <i>Jiun-De Chen & Ann Heylighen</i>	577
Education on How to Improve Public Space - Urban Design Framework - <i>Ruzica Bogdanovic & Ranka Gajic</i>	589
Participants	604

Editors' Preface

Since its inception in the nineteenth century, the design studio has remained at the core of architectural design education. In spite of tremendous changes in epistemology, academe and architectural practice, traditional studio-based pedagogy has remained fundamentally unchanged.

In contrast with its fundamental longevity, at implementation level during the last three decades, there has been a pragmatic shift in architectural design education. Initially, some changes have manifested themselves as an increased criticism of traditional implementations and attempts to rethink the pragmatic nature of design studio culture. The drivers of these changes include epistemological, social, and economical forces. New specialized knowledge and technological developments, increased use of computers and information technology in design education and practice, pressure on institutions of higher education to reduce costs, and challenges in current student demographics have resulted in a teaching/learning environment that is constantly changing.

For instance, the pervasive application of computers and information technology in architectural design education has brought important changes to design studio practices. The introduction of the paperless studios, the e-studio, and the virtual design studio have resulted in a major shift in practical assumptions that were central to the prevailing paradigm, thus putting strain on its adequacy.

It is a fact that we can talk about “Changing Trends” in architectural design education but we need to understand that talking about changes in the design studio is like talking about global warming by describing changes restricted to the tip of the iceberg. At fundamental level the design studio is the pedagogical construct that serves as the melting pot of the newly acquired knowledge base and skills of our design students. Changes in the content of that knowledge base and/or the instrumentation of our skills will have a direct and almost immediate impact in the way we conduct design studio activities. In similar way, changes in the way we practice architecture will have a direct impact on how we conduct studio, and in turn, that will demand curricular changes.

In this multifaceted process of change computer laboratories have emptied our design studios. Not long ago, studio-like activities migrated to our computer labs in search for the strongest computers available. Now we see them coming back to the design studio as the current students purchase more processing power than the schools can possibly provide. But this return of our students to the design studio is not a return to the old design studio culture. Today every student has a computer on his/her desk and the professor conducts desk reviews on interactive plasma screens of large format. Our students don't use Exacto-knives but laser cutters and we collaborate with studios that are geographically distributed making use of real-time face-to-face videoconferencing... and it is not a big deal!

Our students do not study descriptive geometry anymore because Building Information Modeling allows them to virtually model every aspect of their

design within an integrated data model. Many schools are limiting the number of courses they offer on structure, environmental systems, materials, and methods, in benefit of courses that address business-related content and people skills. Sustainability is the new buzz word and our professional programs contain thematic tracks that provide access to architectural specializations, at the same time, that they provide access to a first professional degree.

What is the knowledge and set of skills that design firms seek and value? When we ask design firms about this, the most common answer is: “We want students who know how to think in creative ways”... “We don’t care much about their skills...we can help them develop their skill in the office”. Is this true? Are we reading this statement correctly? Do they mean it...?

Every year "DesignIntelligence" and the "Almanac of Architecture and Design" conducted a survey in which they interview over 800 leading U.S. architecture firms. The fundamental question is: “In your firm’s hiring experience within the past five years, which schools do you feel have best prepared students for the architecture profession?”

The programs addressed by the ranking are 5 years and 4+2 years professional programs and are located in large cities as well as small towns. They are a diverse group of institutions. In closer analysis, each program has peculiar implementations that make them unique but as a common denominator it is possible to say that consistently all 10 programs profess a philosophy of “Knowledge-Based Design”.

Within a “Knowledge-Based Design” philosophy, students acknowledge as a fact that the field of architecture holds a knowledge base of its own and that we are not:

- Scavengers of the knowledge of other disciplines.
- Generalists who know a little about everything but not a lot about anything.
- Unpredictable artists who “will be finished when they are finished”.

From the general characteristics of the “top 10” it is clear that design firms are after, not only students who “know how to think in creative ways”, but students who can deliver a sound product in time. It is interesting to see that in the requirements for licensing in the US and the Intern Development Program (IDP), the majority of experience earned will not be in design but in the preparation of technical documentation. Schematic design requires only 15 credits for IDP, while the category of construction documents requires 135 credits.

As part of the same survey, design firms have also noted a number of deficiencies in their new employee. These deficiencies can probably be divided into three groups:

The Bad News:

90% of employees are deficient about the knowledge on how the buildings are put together.

The OK News:

16% of employees need to improve on their computer skills.

14% of employees can not hold a pencil with dignity.

The Good News:

02% of employees have problems conducting research activities

02% of employees have very limited design skills

From this response we can finally demystify the historical confrontation of digital and traditional design communication media. It is clear that for our students such a conflict is a non-issue and that they feel confident in the use of both digital and analogue media. From the same set of data, it is very gratifying to read that the design firms that hire our students feel that we are providing good researchers and designers, but it is truly disturbing to find out that those same “good designers” have no idea of how buildings are put together.

Overall we have good reasons to celebrate. We have successfully managed to address change without losing the fundamental validity of traditional studio-based pedagogy, but at the same time, we need to review our implementations and seek a higher level of satisfaction when it comes to serve our profession. Maybe even to target providing leadership in the evolution of our profession.

"Changing Trends in Architectural Design Education", captures the spirit of this discourse. More than two hundred authors from a diverse community of researchers responded with abstracts, and one hundred twenty authors submitted papers for blind review. The forty five papers selected have the potential to broaden our knowledge and understanding of how digital technology is developing and is being applied to architectural education and practice. The papers are organized in the book under nine themes or categories that correspond and match the sessions in the conference program. The themes are: virtual and distributed design education, digital design education, digital visualization and design teaching, reflections on architectural design education, integration of studio with other teaching, theoretical issues in learning and teaching design, creativity & critical thinking, alternative studio/design built studio, and teaching studio. This publication has exceeded its original regional framework. Its authorship is not restricted to the Mediterranean Ring. The critical nature of the subject has attracted authorship from around the world and therefore its content also provides a global perspective on the subject.

