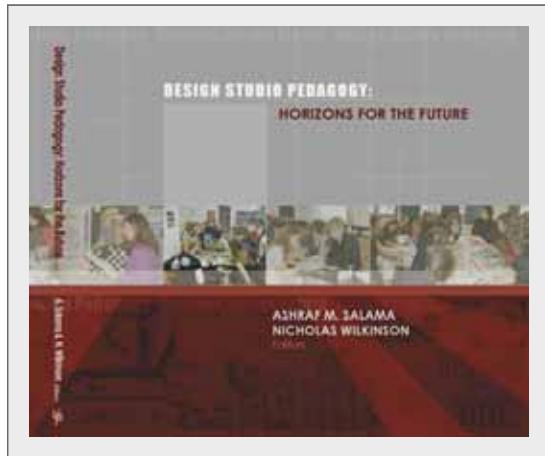# DESIGN STUDIO PEDAGOGY: HORIZONS FOR THE FUTURE
By: *Ashraf M. Salama and Nicholas Wilkinson (editors)*
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Halina Dunin-Woyseth

The book in question is an extensive work, which assembles essays by twenty-six authors. The structuring concept of the book builds upon the following thematic parts: 1. Theoretical Perspectives; 2. Critical Thinking and Decision Making in Studio Pedagogy; 3. Addressing Cognitive Style in Studio Pedagogy; 4. Community, Place and the Studio; 5. Digital Technologies and the Studio. Each part has its own introduction written by the editors. The subject of the book is a field of expertise for the editors. Ashraf Salama has published numerous works on the matter since his influential book "New Trends in Architectural Education: Designing the Design Studio" (1995). Nicholas Wilkinson has been a studio educator for over 20 years and has written extensively on education and housing in addition to his experience and sustained effort as chief editor of Open House International. Their introduction to the book is followed by two invited essays by N. John Habraken and Henry Sanoff, both internationally renowned education practitioners and scholars.

The message of the book appears to be a unanimous criticism of the dominating design studio practices. The book offers a broad picture of the current transformation of these practices. "Such a transformation is from the traditional approach that follows principles and practices developed in the past, and not equipped to deal with the practical realities of contemporary societies, to a more responsive approach that effectively challenges recent advances in social and

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behavioural sciences, construction tectonics, and telecommunication technologies. Such an approach is characterized by committing itself to a student-centred learning process by shaping and identifying studio objectives and processes and thereby recognize the impacts they have on the life-long learning skills of future shapers of the built environment" (Salama & Wilkinson, p. 8). The reviewer supports the viewpoints of the book, basing her stance on the long experience as a university teacher of architecture and physical planning and on her interest for the discourse on the matter.

This seminal book has already been reviewed by two renowned scholars (Michael J. Crosbie and Nikos A. Salingaros), leaving a picture of a serious and important contribution both to the practice and the discourse of architectural education. This reviewer has taken the liberty to present and discuss this book using an approach different from her predecessors. First the content of each chapter will briefly be presented, as each plays a distinctive role in the structure of this work and each can be of interest to a different audience. These descriptions of the contents will be followed by commentaries, which also follow the chapter-by-chapter order of the earlier section. It is intended that the commentaries can be read independently of the initial descriptive section. Finally, some comments will be made on the book as a whole.

1. THE BOOK

Introduction: Legacies for the Future of Design Studio Pedagogy

The editors, *Ashraf M. Salama* and *Nicholas Wilkinson*, paint the background of the book and its objectives with broad brushstrokes. They present the main lines in the development of architectural education over its long history with emphasis on design studio pedagogy. They emphasize that the notion of the latter has been a taboo, un-debatable and untouchable for a long time. An extensive review of pertinent literature provides a well-informed stage for other contributors of the book. The introduction points at the potential forum for this book, those being academics, practitioners, graduate students, and those who make decisions about educational systems. In the book, this forum will find a plethora of recent experiences from innovative design studios and they will learn about visions for the future of this form of teaching and learning design. They can become familiar with the growing discourse on the matter and position their own research interests within it.

Introductory Invited Visionary Essay: To Tend a Garden – Thoughts on the Strengths and Limits of Studio Pedagogy

N. John Habraken, proposes that "...the idea that our professional knowledge should be about the built environment, observed as an autonomous and living entity – something too complex to claim as a product, but subject to our cultivation – seems to me sound and promising. Such knowledge may, eventually, allow us to decide with confidence what can

be taught in studio and what is best conveyed and learned in another way" (p.17).

Invited Voice of a Three Decade-Experience: Community Based Design Learning. Democracy and Collective Decision Making

To conclude his essay, *Henry Sanoff* refers to another scholar (Olsen,1982).: "Traditionally, architectural education has avoided any systematic discussion of issues such as the social responsibility of the profession. The lack of a code of ethics guiding the practice of architecture allows professionals to be manipulated and used to create uninhabitable environments, while avoiding a larger responsibility for shaping a humane physical world. This avoidance allows such injustices as revealed in the poor living conditions for many people in the world. To ameliorate the lack of a social ethic, it is necessary to rebuild the foundation of architectural education to include the central features of a participatory democracy." (p.38).

Chapter 1: Theoretical Perspectives and Positions

"This chapter addresses a number of critical issues that occupy a central position in recent discussion on architectural education and design studio pedagogy. Such issues pertain to the complexity of knowledge placed in the profession of architecture by society, the types of social and communication skills needed for professionals responsive to their cultural contexts, and the relationship between knowledge and skills on one hand, and science and creativity on the other" (Salama & Wilkinson, p.41).

Michael Jenson introduces his students to a cross-disciplinary methodology. In doing so, he breaks the traditional architectural practices focused on formal / spatial analysis. Such an approach positions the conception of architectural design within a broad discourse including spatial, material, economic, social and political factors as equal constituents in the process of the production of the built environment. He believes that architecture students should take the challenge of reframing the disciplinary norms and values of their own métier in a larger context of physical and immaterial connectedness.

Design studio is according to *Anu Yanar* both a pedagogical mode and a formative environment, creating new members of architecture's professional community. The quality of the teaching and learning processes depends on the ontological dimension of how architecture is defined and on the epistemological dimension of how knowledge about architecture is construed. The social scope of design studio most often decides on the students' systems of values, norms and patterns of behaviour as prospective professionals. The innovative character of the design studio, as described and discussed by the author, is that it provides for a new awareness of the social mechanisms of the profession which traditionally are being "assimilated" by the students, but not understood. This awareness makes them able to take a critical stance on the matter.

The relationship between science and creativity with regards to architectural design is discussed by *Yasser Elshestawy*. In earlier literature on the matter, the act of problem definition, standing for science, was assumed to be more important

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than the creative act of problem solving. This assumption has made the relevance of the design studio within architectural pedagogy rather dubious. Elshestawy argues that there should be balance between these two acts of the design process. While the first one is being addressed by studies and research, the other one aims at integrating the results of the inquiry into a unified whole of the architectural *parti*. Several highly renowned architectural projects were chosen to support the postulate that a new culture of innovation in architecture and its education, based on a balance between science and creativity, should be promoted.

Over several decades, *Necdet Teymur* has contributed to the international debate on design and architectural pedagogy. He investigates in his text whether the classical Vitruvian triad of 'utilitas, firmitas, venustas' is still valid in this context. This investigation leads him to the postulate that the triad, because of its openness for diverging interpretations, should be articulated in a more detailed form in order to serve as contemporary valid guidelines for architectural education. Teymur reviews two educational models developed by the British scholars Hillier and Markus. Finally, capitalizing on the models of his predecessors, he proposes his own model, called "4 x 4", one yet to be tested.

The chapter ends with text from *Donatella Mazzoleni*. Her message addresses the meta-level of the global environmental hazard and how architectural education should respond to it. Building on her review of the long and rich history of architectural education in Italy, she proposes to regard the Italian experiences, set in a philosophical and theoretical perspective,

as a reference for formulating a generic consideration on crucial interests and concepts for this education. Mazzoleni refers to the International Conference on Humane Habitat (ICHH) 2005, held in Mumbai, India, where a 'Manifesto' was formulated by teachers of architecture from Asia, Africa and Europe. She assumes that this document has the potential to unite all those teaching architecture towards developing this teaching as a language of peace.

Chapter 2: Critical Thinking and Decision Making in Studio Pedagogy

"…this one (*chapter*) advances the discourse on design pedagogy by presenting cases and implemented teaching models. In different ways, they all (*the contributors to the chapter*) look at design problems, thought processes involved in different processes, and how they may lead to a successful learning outcome" (Salama & Wilkinson, p.125)

Malika Bose postulates that the design process has much in common with critical inquiry, which builds upon: goal directed problem solving, the ability to separate meaningful information from non-meaningful information, and evaluation. She presents a brief review of central literature on critical inquiry which supports her postulate. Further, she discusses the capacity of the design studio environment as an ideal educational scene for training in critical inquiry. A case of the Department of Landscape Architecture at the Penn State University shows how the studio instructors systematically evaluated the effectiveness of a third year site planning and design studio in promoting critical thinking of students. The author recognizes the potential of

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research on the matter to have a strong impact on the development of design education in the future.

While taking up old dilemmas and new strategies in the design studio, *Nisha Fernando* finds fault in the traditional teaching methods, which cultivate the dichotomy between knowledge and creativity in design. In her paper she first discusses various salient problems that usually exist in the design studio presently. Then she reports the results of a specific pedagogical model applied for teaching a senior level design studio in an interior architecture program. The model builds upon a two-fold approach. First, it provides for adjacency of research and creativity as the major principle of design studio. Secondly, students are stimulated to work out individual paths for their own design process leading to creative solutions. Fernando demonstrates the links between these two aspects of both collective research and individual creative pursuit in an integrated design process.

There are clear similarities between the standpoints of Nisha Fernando and those of *Ashraf Salama*. His paper builds upon an extensive literature review, including his own work. He admits equal importance to the "what" and "how" of design. According to him, design should be based on intuition, logical treatment, and rigorous reasoning. He introduces a mode of studio pedagogy which is theoretically anchored in the multiple intelligence and the split brain concepts. This mode rests on the three constituents: process, content, and teaching style. It is to take place in four phases, which include analysis, gathering information, interpretation and schematic

design. This model has been implemented in a sophomore studio. The pedagogical result seems to be a growing control of the students' design action, choices, and decisions.

A specific pedagogical concept of design pedagogy is presented by *Stephen Kendall*. He assumes that students can better handle smaller decisions, limited in their complexity and volume, than the decision making process with regard to an entire design assignment. His other argument for partial students' assignments is that almost all design work is partial, as it is carried out by collaborative teams, not by individual designers. In Kendall's studio students work on series of exercises which supply them with experience from and better understanding of architectural partial interventions.

The importance of the aspect of making already in the beginning of the design education is the focus of the paper by *Ryan E. Smith*. The knowledge of architectural technology demands hands-on teaching and learning. The author regards the acquisition of this knowledge as central in order to prepare architects for the role of leaders in the making of well-crafted architecture. He proposes a model of integrated design studio pedagogy based on this postulate. Through hands-on exercises the students are expected to develop tacit knowledge of architectural technology and then become well prepared to make intelligent design decisions.

Chapter 3: Addressing Cognitive Styles in Studio Pedagogy

"They (*the papers in this chapter*) set the stage for sustaining the discussion on how knowledge

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is acquired then utilized in design actions, and the emotional stress that students face in this process. While some argue that acquiring different types of knowledge should precede any design activity others advocate the view that knowledge acquisition and its application should occur simultaneously" (Salama & Wilkinson, p.187).

While recognizing the continuous validity of the design studio as an appropriate ground for architecture education, *Yasser Mahgoub* points at globalization as the strongest challenge to this education, one demanding profound changes in the curriculum. His response to this challenge is that the studio should change its role as the core of the design education to become the climax of knowledge and experience assembled by the student. The reason for such a change is that the amount of the information, required by the contemporary knowledge-intensive design, has grown immensely since the dawn of recent century. Mahgoub has developed a horizontal structure for an architectural program, where he attempts to integrate different types of knowledge offered in lecture-based courses into studio projects, thus moving the studio position from the core to the capstone.

Another innovative approach to design education is presented in the paper of *Louise Wallis*. She has reviewed pertinent pedagogical examples in different countries, as well as international literature on the matter. She discusses the learning-by-making approach with strong reference to David Kolb's experiential learning theory. Her teaching, based on this approach, has three main aims. The first is to make students more aware of the relationship between designing and building. The second

is to introduce them to the collaborative design process. The third aim is to create an educational climate of collective, shared knowledge, derived from the experience of the design build studio.

While using two-dimensional explanations to three-dimensional places, design teachers often experience problems. *Jeffrey Haase* recognizes the crux of the problems in the dynamic difference in scale that exists between the tools used in designing and the environments they stand for. He attempts to overcome the problems by "borrowing" a number of techniques utilized by installation artists. In this way, students learn how to employ alternative representations in order to solve problems.

Noam Austerlitz and *Iris Aravot* studied design education as a process of transforming people into designers. Their research shows that emotions are deeply interwoven with the learning processes in design studio. The student-instructor relationship, which is central to educational practices, should be studied in depth in order to provide a better insight both for design educators in the future. Such an insight would create an important ground for improving studio pedagogy.

Chapter 4: Community, Place and Studio

"This chapter continues to externalize concerns about studio pedagogy by addressing issues that pertain to community design and the value of understanding the concepts of place and culture" (Salama & Wilkinson, 249).

In the context of design studio, *Richard Kroeker* and *Virajita Singh* have explored some cultures

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that have intensive and extensive relationships with their natural environment and other cultures that are in a process of self-definition or re-definition. Kroeker and Singh's pedagogical work advocates the stance that architects should learn to relate to individuals and communities that are part of a specific culture in order to understand their needs and hopes. In meeting with 'real' people students can better understand the context of society and their own potential as prospective professionals with regard to the lives of communities.

Ruth Morrow presents in her paper a pedagogical event, its site being a city evolving from a political conflict. Her pedagogical event model has been carried out for over five years in two schools of architecture. She sets a scene for the recent thinking around 'live projects', their advantages and potentials. Each year the event brings about the establishment of new partnerships with community members, funding agencies, and developers as well as students. The event contributes to the university as an outreach program integrated into the educational process. It has a potential to create a basis for research projects and community partnerships. In these roles it complies with the policies of higher and architectural education in the UK.

Engaging students in redefining the problems facing the community and reformulating solutions to the recognized problems through interactions with the community characterizes *Jeffery Hou's* agency studio approach. While a traditional mode of involving students in community development would be to produce a plan or a set of recommendations, the agency approach engages students and community

members in open-ended possibilities of local planning and design, and thus launches a process providing innovative social and spatial outcomes in community development.

Hülya Turgut Yildiz introduces a teaching approach for advanced design studios. The objective of the studios was to increase students' knowledge of and sensibility towards community and place issues. The site of the studios was a historic town that has protected its identity and structure over time. The author postulates that integrating the "why", "how" and "what" in design teaching in 'real life' environments results in successful pedagogical outcomes both for students and studio instructors. She also recognizes the potential of this type of studio teaching with regard to both future research and to university outreach activities.

Chapter 5: Digital Technologies and the Studio

This chapter presents some interventions on the role digital technologies can play in future design pedagogy.

Studio pedagogy has a long tradition of stability. The recent decennia have, nevertheless, brought about profound challenges to the profession and its education, mainly through the tremendous developments within information technology (IT). *Rabee Reffat* commences his paper with a review of the young history of the presence of computers and IT in architecture. He points at the new opportunities this development can have for architecture through creating new specialties and extending its expertise. Reffat comments on the tradition

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of architectural education and research that seems more backwards than forward, and that mostly stays in the realm of the present. He calls for a more proactive approach on the part of both with regard to the future.

Mirjana Devetakovic Radojevic discusses the issue of knowledge codification and the dynamic theory of knowledge creation by Nonaka. She investigates the construction and utilization of knowledge about design sites. Her investigations are directed towards architectural education with emphasis on virtual design studio (VDS) experiments. She proposes a classification for the process of knowledge codification in a VDS through the notions of: initiation, realization, and reflections. This conceptualization has proved to be beneficial, while addressing the transformations of tacit and explicit forms of knowledge.

The closing paper by *Luca Caneparo* discusses an agenda for education in architectural design and technology of architecture. The author propagates the view that there should be a synthesis between method-oriented and case-oriented education, between the design studio and the lectures. Such a synthesis can be easier to achieve through the new insights brought about by several education theories, like for instance constructivism , learner-centred teaching and GBS, as well as the tools developed by research in the field of artificial intelligence. Caneparo believes that these theoretical frameworks have the potential to provide appropriate methodologies and tools to enable the integration of various manners of knowledge construction, delivery and utilization.

2. COMMENTS ON CHAPTERS

Chapter 1: Theoretical Perspectives and Positions

This chapter delivers several contributions, which confront the traditional stance in the creative professions, that "…the less one knows (as distinct from being informed about things), the less reference to precedent is possible, and the easier it is to think oneself original" (Habraken,p.17), originality being one of the foremost ideals of the design professions. It is argued in the texts that design acts negotiate and reconcile various types of knowledge through design processes and in the products of design. Science understood as a particular creative process has much in common with design.

The chapter offers several notions on ethics in design studio environments. It is posed that the design studio is the hearth where values and norms are internalized for the future members of the design professions. Therefore it is paramount that the ethics with regard to the challenge of environmental hazards in a global context should constitute the core of design studio.

The contributions of this chapter weave into the growing current of writings within the philosophy of science where design as a particular way of acting, knowing and research seems to get broader interest of scholars from various disciplines. Glanville postulates even that "… research is a design act" (Glanville,1999: 90). Concerning reconciliation of design and research, a considerable number of scholars recognize in the present-day research in various traditional fields of codified knowledge "a

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continuum from scientific research to creative practice" (Practice-based Doctorates... 1997:20).This chapter builds bridges for design education as a contributor to these epistemological developments.

Chapter 2: Critical Thinking and Decision Making in Studio Pedagogy

In this chapter a special focus is laid on various innovative pedagogical models, which were successfully implemented and which brought about new insights of general value for design pedagogy. The assumption of similarity between the design process and critical inquiry was the point of departure for several studio courses. The experience from these courses was the students' stronger awareness of their design stance and choices as well as their stronger proficiency in argumentation for the design choices taken. Developing students' abilities both to work individually and in teams proved to be fortunate in the courses which combined both research (conducted in teams) and creative practice (pursued individually) in design studio. These two approaches complemented each other and integrated the course into one pedagogical model.

The necessity to address the "why", "what" and "how" in design studio has been argued for through a broad literature review, including recent literature on pedagogy. This insight has been "tested" in real studio situations, presenting rewarding pedagogical outputs. While architecture teaching emphasizes the importance of holistic thinking in design, some very successful courses built upon the pedagogical concept that in order to master complex design tasks, students should be first trained in solving smaller, limited assignments. The sense of mastering "the small" turned out to be a strong incentive to continue with the more complex design tasks. Since architecture demands intimate, "tacit" knowledge of materials and how they function, several courses were offered, basing on a hands-on approach. The pedagogical result was the students' stronger confidence in their designs of well-crafted architecture.

This chapter has a special importance for design education as practice. It brings about a number of "success stories" within innovative educational practices. It addresses the core of the professional concerns with regard to various types of knowledge and skills which together constitute the professional expertise. It has a clear value as an ideological tool for promoting changes in local educational milieus as well as a reference for broader debates on educational strategies.

Chapter 3: Addressing Cognitive Styles in Studio Pedagogy

There are differing standpoints with regard to ways of knowledge acquisition in professional fields. One stance advocates for an *a priori* acquisition of knowledge as preparation to the design training. Studio as a core design education mode is thus proposed to become a "capstone" for this education. This approach is supported by the view that the architectural profession has developed into a knowledge-intensive field of expertise.

An opposite stance with regard to knowledge acquisition is that making architecture itself should be a point of departure rather than first

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learning about this process. This concept has been used while developing studio courses called Design-Build. The model demands that the students engage in design which leads directly to making architecture, based on this design. While doing so, the students acquire an adequate architectural knowledge.

A particular notion of design education, this of representation, can create the basis for a studio situation, resulting in acquisition of pertinent architectural knowledge. The use of installations as a pedagogical tool seems to open new possibilities in teaching and learning design.

The teacher-perspective is the most dominant one while discussing cognition styles in design studio, but this chapter also includes an investigative project which reveals the importance of a student's perspective, which is necessary to take into account in order to achieve successful pedagogical results. The project, conducted in a real studio situation, shows how deeply emotions are interwoven in the learning process.

While the previous chapter presented various arguments for educational practices and the general pedagogical concepts behind them, this chapter focuses on the "how" of various educational concepts. By strongly showing differing concepts with regard to knowledge acquisition, it can help individual teachers to position themselves in this debate. The "forgotten" student perspective on studio education reminds the instructors of the sensibility of the "users" of their teaching and of possible consequences of the teachers' pedagogical styles.

Chapter 4: Community, Place and the Studio

Henry Sanoff has in his introductory essay strongly and convincingly advocates the ethic ground of community-based design studio. The contributors to this chapter developed the issue even further.

One of the strong arguments for the importance of studio teaching in connection with the community is that in meeting with 'real' people students can better understand the context of society and their own potential as prospective professionals. An *extra muros* event of only four-day duration has proved beneficial for many stakeholders. Each year it has brought about the establishment of new partnerships with community members, and the funding of agencies and developers as well as students.

Involvement of design studio in community matters can contribute to their development in ways different from public planning agencies and private consultants. Students can help the community with redefining their problems and reformulating solutions. Such kind of support can have innovative outcomes in community development. In meeting with the community the abstract issues of "why", "what" and "how" of design receive new dimensions and aid in the development of new professional sensibilities among the students. Such meeting can lead to both university outreach activities and to research initiatives, derived from the 'real' life of the community.

This chapter is important, first and foremost, because of its ethical dimension. It relates

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directly to one of the constituent aspects of the profession, i.e. the fiduciary duty (Rowe,1996: 242-3). In order to be able to represent the interests of the client, prospective architects should early in their formative years learn how to understand the client's needs, hopes, and aspirations. Another value of the chapter is that it opens the discussion about various possible roles of architects, a discussion which is usually absent from the design studio milieus, even if only about 60% of architectural graduates ever enter the traditional architectural practice.

Chapter 5: Digital Technologies and the Studio

Information technology has been challenging the design studio in recent decades. This chapter provides a brief review on how this development has taken place and what the milestones in its course have been. Some design educators believe that information technology opens for architecture the possibilities to create new specialties and to extend its expertise. Computers have caused a real "revolution" in knowledge production. New areas of professional expertise, until recently, inaccessible for those outside the profession, have been transformed to more explicit, even codified, knowledge and thus opened these areas for other professionals, scholars and laymen. Information technology has intensified the development in many research fields, concerning pedagogy, artificial intelligence, cognitive sciences etc. This development can be beneficial for advancement of new appropriate pedagogical methods in studio design.

The closing chapter of the book can help an average reader to realize how profound changes have already occurred in the profession and its education. The chapter gives a "foretaste" of how knowledge-intensive architecture as a field of expertise has become. Yet, it looks forward to the future with an optimistic message that the growing profession-related knowledge, and information technology in its service, can be highly supportive to design education.

3. COMMENTS ON THE BOOK AS A WHOLE

The book represents a highly qualified "status questionis" on the subject of design studio in architectural education. In an intelligent manner, it assembles ideas, theories, pedagogical experiments, covering a broad spectrum of issues concerning design pedagogy. The introduction to the book, written by the editors, offers a well-informed and engaged background to the contents of the whole publication and states the objectives of the work clearly. The two introductory essays by the grand men of architectural education, N. John Habraken and Henry Sanoff, share with the readers the results of reflections of several decades of their professional engagement in design studio, thus creating a spirit of continuity for the central issues covered in the book.

The introductions to the chapters, written by the editors, provide well-defined frameworks for the positioning of the individual contributions within each chapter, as well as within the whole book.

A great tenet of the book is its global character, represented by the contributors' multi-cultural backgrounds and the sites of their pedagogical

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experiences. In this way the book proves that architectural education is already a global issue, with its similarities and differences. The book attempts to meet the challenges of the emerging society of knowledge, reporting from a number of well-informed discussions at the epistemological level of the architectural discourse as evident from the debates generated in Chapter 1. It offers arguments for ideological debates, presenting many "success stories" from provoking, innovative experiences throughout the whole book. It focuses on the neglected ethical aspects of the profession especially in the introductory essays and the arguments presented in Chapter 4 The book closes with an optimistic call for a proactive stance with regard to the development of information technology for the best of the profession.

While this book has been written by and addressed (mainly) to architectural educators, the undersigned has been tempted to close the review, looking at the book through the "glasses" of a classical framework of pedagogical studies. In this way, the contents of the book can be, hopefully, better shared with pedagogues in other fields for mutual benefits.

In 1979, John I. Goodlad and his co-authors defined their classical work, proposing a concept for curriculum inquiry, called the "Goodlad's ladder" (Goodlad et al,1979). Although the objective of their study was primarily school curriculum, their work has proven to be useful also in other pedagogical fields and at different educational levels, while conceptualizing the broad and complex areas

of design education. In the chapter "The Domains of Curriculum and Their Study", five levels are defined and addressed: *ideological, formal, perceived, operational* and *experiencial* curricula (Goodlad,1979:60-64). Goodlad says that "…ideal curricula emerge from idealistic planning processes" (ibid. 60). Although those who develop them anticipate the adoption and use of them, their implementation can be heavily influenced by various socio-political processes.

The majority of the contributions in the book raise the issue of "ideal curricula" in the form of thoughts and concepts for design studio teaching in general. An example of socio-political impact on design education can be read in the paper of Ruth Morrow who mentioned that the design studio she was involved in complied with the current issues of Higher and Architectural education where entrepreneurial and collaborative skills among the students are one of the aims of Higher Education in UK.

"Formal curricula are those which gain official approval by state and local school boards and adoption, by an institution and / or teachers"(ibid.61). The products of formal curricula are "artefacts", like curriculum guides, adopted texts, units of study set forth by a curriculum committee. Such artefacts are supplied in the papers of several contributors. Ashraf Salama presents, for instance, stages of the proposed process based studio teaching model (p.158), Yasser Mahgoub includes the diagram of the horizontal curriculum structure for the curriculum he proposed (p. 198). Richard Kroeker and Virajita Singh presented in their

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paper a study guide as support for the students to analyze aspects of Dakota's material culture which might have application to the contemporary condition (p.266-7).

"Perceived curricula are curricula of the mind" (ibid.61). They express "…what teachers perceive the extant curriculum to be and what attitudes they have toward what they view as reality" (ibid.62). Almost each of the contributors has been "primus motor" for developing the studio courses they describe in the papers. The book seems to heavily rely on that step of the "Goodlad's ladder".

Goodlad further elaborates that operational curriculum is a self-diagnosis on the teachers' own pedagogical work with regard to a concrete curriculum (ibid.62). It is the awareness of one's own pedagogical style, while executing teaching according to a specific curriculum. The majority of the contributors, presenting their own educational practices in design studio, address the level of operational curriculum, while reflecting on their own practice. It seems that the perceived and the operational curriculum are two sides of the same coin in the book.

As for the experiential curriculum, one contribution has been devoted to this step on the "Goodlad's ladder", that of Noam Austerlitz and Iris Aravot. It has enriched the picture the book offered in a profound way. The only other example at that curriculum level is given by Hülya Turgut Yildiz, while quoting how her student Özge Saka understood the task of the studio assignment.

According to this brief examination, based on the concept of "Goodlad's ladder" of curriculum, the character of the book "Design Studio Pedagogy: Horizons for the Future" seems to predominantly address the ideological, perceived and operational levels of the curriculum. It is a hope that future book projects will also address the levels of the formal and the experiential curriculum in design studio. By using the interdisciplinary channel of pedagogical studies, design studio concepts could be better externalized into other fields of pedagogical studies for mutual benefits in the future.

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Halina Dunin-Woyseth *is* Professor of Architecture, Professor of Architecture, Oslo School of Architecture and Design (AHO), Norway and director of the Doctoral Programme at the AHO

For a complete professional biography, see contributors to this issue pp.7-13.