

# 192 The Status of Graphical Presentation in Interior/Architectural Design Education

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## Abstract

This article argues that interior/architectural design education favours a dominance of final presentation over the design process in the studio environment, particularly in the evaluation of a project. It suggests that the appeal of design juries for pleasant drawings, which may shift the emphasis from the project itself to its representation, may be recognized as a discursive habit with limited contribution for educational concerns. The theoretical stance argues that the interest for graphical presentation has primarily remained within a formalist aesthetic agenda and has rarely been conceptualized beyond this convention.

With this in mind a series of questions is developed in order to reform the relationship between graphical presentation and the design education process.

### **The status of graphical presentation: definition of the problematic and the theoretical approach**

Design education is a complex field in which a number of theories, paradigms, ideas, principles, conventions, and clichés prevail. Consequently, there are different attitudes in guiding design studios according to different approaches. As instructors of a design studio and a graphical presentation course in an interior architecture curriculum for a number of years, the authors strongly believe that regardless of this variety, there seems to be a consensus for the necessity of an ideally finalized graphical presentation of a design project [1]. This tendency may be due to many factors, in conjuncture with sets and systems of values that are hidden in the agenda of a design studio and its evaluation system. Furthermore, it may be nourished by a reverence of design, first and foremost, as an artistic endeavor [2].

To test if there is any veracity to this tenet, the study [3] here aims to reveal the status of final graphical presentation within the design studio environment. It is undertaken with a precept that the notion of presentation is dominantly understood through its visual concerns – aesthetic images and technical precision. In this context, it is claimed that the concept of final graphical presentation is embodied in a visual language of its own, which in most cases is distant from the design process. In other words, it is dislocated from progressive thinking and conceptual development of a project into an autonomous realm of activity with its own sets of values. The fact that design concepts can be best shaped and conveyed through visual representations, such as sketches, rendered drawings and images of models, supports the requirement of final drawings. Moreover, prevalent value systems constructed around visual concerns promote their potency and autonomy. Conditionally, the power of their aesthetic expression becomes a dominant factor in the perception of a project. However, if this expression alone begins to govern the process of education, some focus

inevitably shifts from the process of design to the creation of the final product. Therefore, appraisal of final graphical presentation supremely as an aesthetic concern may dilute the process of design education.

The theoretical approach in contemplating the power of final graphical presentation proposed here conceives it as a concept, which is formed through a 'mass of statements', or a body of discourse, produced and circulated by architects, designers, critics, academicians, theoreticians, and students in different forms of written texts, speech, questions and remarks in the design environment. Equipped by specific terms, definitions, interpretations and classifications with varying cogency, these 'statements' offer an intricate domain for the conception of an ideally finalized presentation. The contours of this domain designate the limits of expectations and explanations on presentation and lead into an agreement on its signification. In accordance with this argument, it can be suggested that presentation is processed by a system of statements through which it is mentally constructed, and institutionally defined [4]. In the design studio environment, these statements appear and act under various pre-conditions such as 'design juries', 'studio culture' and 'student competition projects.' Mediating in ostensible or obscure states, they not only denote what presentation is about or how 'good' presentation is possible, but they also discursively inform and influence (construct) design education. Controlling the way graphical presentation is conceived and perceived, they legitimize its general concerns, which in turn affect the assessment system in design education to a great extent. In this conjuncture, the study assumes that the power of graphical presentation may be best identified through the observation of these statements and their authority over the studio environment.

#### **Design jury as a ruling pre-condition**

The object of presentation is mainly established as production and perception of fine finished drawings. This is usually realized for and on a plat-



form called the design jury, composed of members of the discipline. Perhaps, design juries constitute the most nameable and effective precondition for the mediation and appropriation of statements on presentation. In most design schools today in Turkey, they are still the main and the foremost essential ingredients of evaluation systems. The origins of the design jury may be traced back to 19th century France, to the Ecole des Beaux Art in Paris [5]. The Ecole des Beaux Art has been considered to be the most significant and influential architecture school in the 19th century because it introduced a system that, 'replaced the training of apprentices in the craft traditions with an approach geared almost entirely to design [6].' The competitive education of the Ecole promoted the development of elaborate techniques for preparation of final drawings that conformed to an approved schematic design [7]. Accordingly, the students were expected to put a lot of effort into final graphical presentation, to be judged by a design jury and were given as

long as four months to prepare them [8]. In the beginning of the 20th century this system became a model for the North American architecture schools, as well. It has survived as a conventional assessment mechanism, which not only promotes a competitive environment in the design studio, but also enables final graphical presentation of a design project to prevail as an autonomous sphere, independent from progressive development of design.

In its post-modern state aestheticizing design drawings as mere graphical objects has preserved its significance as architecture/interiors maintained a more style-oriented agenda, competing for visibility. Some critics of architecture even declare that cogitation about social obligations and theorizing a critical agenda for design has become secondary to visual concerns [9]. Along with developments in computer technology, the culture of creating ostentatious drawings and compositions, dramatized by the Beaux Art tradition, finds new life in computerized

imagery. With the help of publications and exhibitions, this image-rendered state of design arrogates the visual materiality of presentation. The new media of computer-aided or computer-generated images, accompanied by romanticized traditional drawings, such as sketches, at times redefines the visual aesthetics of final graphical presentation. This redefinition not only sustains its power in education, but also reinforces the authority of the design jury as the major assessment parameter.

A major problematic of design juries, whether it be a mode of interaction in design studios or a non-exchangeable static mechanism in student competitions, may be identified as its apparent involvement in finalized presentation over earlier phases of design. Its temporality may promote a dominance of final drawings and their composition over process drawings and asserts a clear separation between the two illusionary phases of design: the production of the final product and the process. Furthermore, it may manifest a clear remark on behalf of a glossy termination since the glorification of presentation confirms the authority of the design jury and the prestige of its members. When a belief in an effective and skilful graphical presentation becomes the most essential element of a successful jury presentation, this aspect of design becomes one of the most important preoccupations of a design student. On the one hand, this preoccupation demonstrates an affirmative and respectful attitude on behalf of the student towards the discipline, the curriculum, the project and the evaluators, and this enhances his/her credibility. However, on the other hand, it may take away much valuable time from the design process and this raises many questions in regard to its educational validity. Therefore, if the design jury acts as a platform that stresses the importance of the final graphical presentation in the educational arena, its appropriateness may be challenged by asking several questions. Does the jury ignore some important design phases while promoting others? Does it fail to evaluate the substance of a

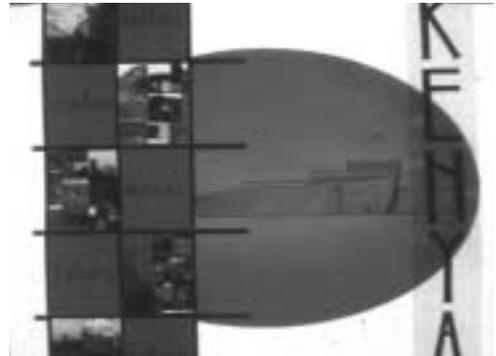
design project as a result of an over-concern with graphical presentation? Is design education an interactive platform for learning or a rehearsal for client-designer relationship? Does the jury assert its power from the impact of an established conception on presentation through a multiplicity of statements circulating in the field of design education?

### Method

Our theoretical stance that recognizes the concept of graphical presentation as a discursive system suggests that the discourse constructs judgments, systems of values and norms, which are adapted in education. Consequently, these values and norms designate the autonomy of the product against process. In this conception, the study is not about graphical presentation itself, but about the statements, 'which may or may not have been written or said' around it [10]. Existing and propagating in various forms – in writing, speech, thought – groups of statements provide graphical presentation with a position by equipping it with a 'nameable and describable' substance. The statements constitute a medium in which graphical presentation is prescribed or appropriated as a part of the design activity. Second, the statements establish a 'body of knowledge and practice as an authority to be recognized.' This induces the operation of graphical presentation as an autonomous realm in education and practice. Finally, the statements define the practice through a complex web in which it is 'classified, related, regrouped' or interpreted in various ways, which include books, for example, on effective drawing and rendering techniques [11]. It should be recognized that within and among the discourses that constitute practice there might not be unified, consistent or permanent views; there may be discrepancies, conflicts and limitations. Moreover, there may not be a chronological regularity in their formation or distribution [12]. This realm's incoherence connotes that there may be no unique presence of meaning representing the concept of graphical presentation, thus it

Opposite:

Figure 1  
Images from the  
Venice Biennale  
2002: work of Arata  
Isozaki, Ushida  
Findlay, Renzo  
Piano, Ushida  
Findlay and others



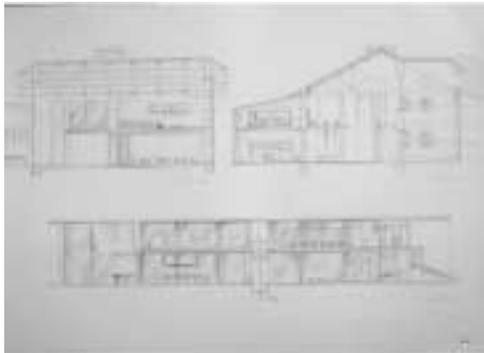
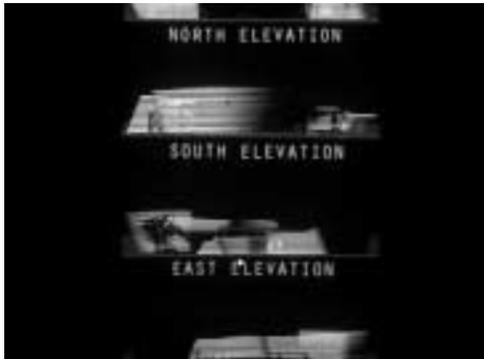
cannot be readily expressed as a well-formulated given in advance. Rather, the concept of graphical presentation incubates in 'spoken or non-spoken' fragments scattered over a vast area. Therefore, observation of these fragments circulating in different spheres of activity arises as a mode in understanding and exposing its status.

In this respect, the method for the study constitutes rigorously investigating statements on graphical presentation, existing in different forms. To understand them, the analysis first critically examines numerous books on the subject and composes a collection of written statements to illustrate the 'mode of existence' of graphical presentation and the multitude of statements that are written, published, discussed, learned and taught [13]. Second, it consults the viewpoints, thoughts and opinions of both interior architecture students and instructors through questionnaires and interviews. The mission here is to expose 'hidden statements' and to observe their accumulation [14]. The main objective is to

determine the weight given to final graphical presentation within the design jury/process in relation to the overall assessment.

### Part I

Part I aims to collect a set of statements, that exist in written form through observing a number of books in the subject. What makes them statements, rather than mere linguistic items (sentences) is their position, which can be abstracted from their referents and occupied by others within the field of design. [15.] Accordingly, the mission here is neither to denounce, nor to approve their content or validity, but to demonstrate the position of graphical presentation through their dense reiteration. Likewise, it should be stressed that the producers of these statements are not criticized or labelled as being liable for the problematic state of presentation that this study suggests. Their identity or position is not pertinent by any means other than providing examples to demonstrate the argument [16].



These examples might possibly be organized in other ways, replaced by others and/or changed in number. Finally, the statements are grouped with an understanding that their density on some specific concerns of presentation and rarity on others bond them together [See Appendix 1].

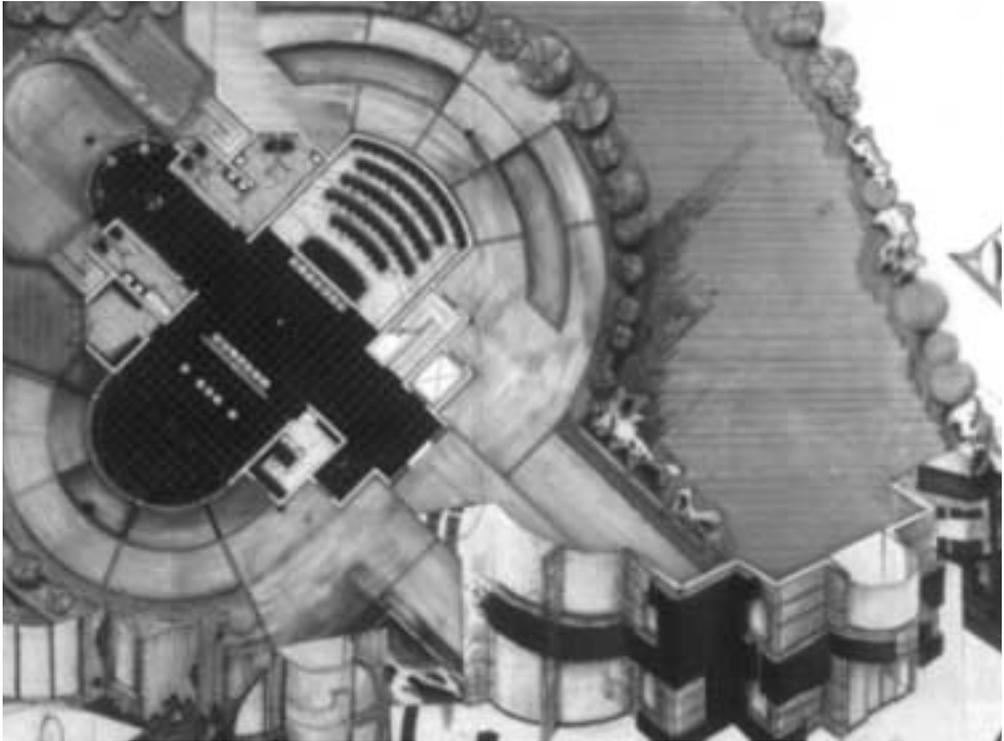
## Part II

Following up on the conviction that thoughts (hidden statements) prevailing in design education contribute to the formation of the concept of presentation, Part II endeavors to depict views of both interior architecture students and instructors on the subject through a questionnaire and interviews, respectively [17]. In Part II (a), 125 undergraduate interior architecture students from second, third and fourth years are given questionnaires to find out to what extent they think that final graphical presentation effects the evaluation of the design project. The first question aims to clarify what the students understand from 'effective' graphical presentation of a design

project by ranking its different components, such as sketches, rendered drawings, architectural lettering, board organization at a scale of five according to their impact. The second question intends to put the significance of final graphical presentation in perspective by comparing its perceived value to the other topics. Thereupon, it asks the students to rank 20 identified topics that are rendered in a design project according to their relevance and importance at a final design jury. In identifying the topics, a study of Potthoff and Woods, which utilized accreditation material of the Foundation for Interior Design Education Research (FIDER), is consulted [18]. Besides the constituents of graphical presentation, these topics include significant subjects, such as space planning; lighting design; human factors; and building systems. The third question seeks to find out whether the students believe that strong graphical presentation effects the evaluation of design juries and if so, how much effect they feel it has. The final question asks how often they feel

Opposite:  
Figure 2  
Images from student presentations in Bilkent University

Above:  
Figure 3  
Examples of student work using different presentation techniques in Bilkent University



that there is a strong correlation between 'good' design and 'powerful' graphical presentation.

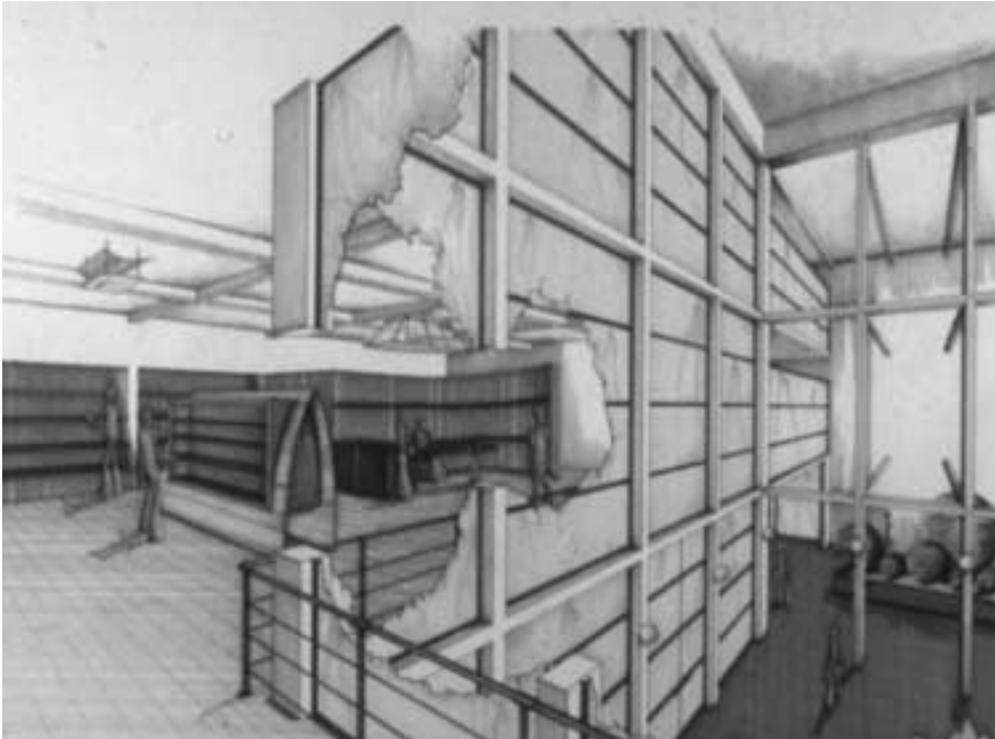
In Part II (b), 25 interior architecture studio instructors and jury members are interviewed in response to the latter two questions to determine how much value they indeed place on final graphical presentation in the evaluation of a design project. The education and background of these instructors are primarily architecture. The results from the questionnaires and the interviews are tabulated and graphed together for ease of comparison (Figures 6–10).

### **Findings: Part I**

No doubt, the analysis of statements does not offer clear-cut results; rather it gives an overall view in the field of design education. Nevertheless, observation of literature on graphical presentation indicates that it indeed evolves as a concept, which is dominantly valued through its visual concerns. Apart from any significant theoretical position, presentation exists as a system of its own. This

system manages and manipulates the field of architectural/interior design by producing persuasive definitions and convincing concepts, validated through the credibility of statements. Effects and techniques of 'good presentation' are enveloped, either as professional, artistic, technical or educational phenomena.

The view on presentation as a powerful entity in design process reiterates itself in the content of the written statements on the subject. The statements activate a number of factual terms and phrases, such as technical drawings, computer drawings, rendering, line quality, line value, free-hand drawings, architectural lettering, title block, information boards (material, furniture, lighting...), board organization, that form the general concept of graphical presentation. This general concept is idealized through supporting (as well as evaluative and subjective) adjectives, like precise, original, aesthetic, successful, clear, finalized, beautiful, skillful, artistic... to affirm the status given to presentation. Graphical presenta-



tion and its sub-concepts are articulated and refined by interpretations, which may reshape or subjoin the existing understandings. Their properties and boundaries are identified and secured as certainties through definitions. The well-formed sentences beginning such as “graphic presentation is ...”, “drawing is ...”, “and design graphics is ...” provide compact information in a stable form. Classifications organise the realm of graphical presentation into regular compartments. The drawing types, techniques, etc. that supposedly have common features, are labelled with common designations. All these verbal mechanisms allow graphical presentation to be experienced in an institutionalised and structured way. Finally, the analysis shows that predominant value systems activated in written text legitimise the authority of graphical presentation in education. The multitude of statements equips it with a more entangled structure, which ‘consolidates’ and ‘intellectualises’ its field of non-theoretical knowledge. A specialised vocabulary and profes-

sional discourse that constitute an aesthetic ideal, bring an ostensibly accurate (yet, discursive) knowledge to the graphical presentation. It gains a solid (but, questionable) status in the field of education through the mastery and effectiveness of the statements appearing in books with an influential role on the subject.

## Part II

The findings of Part II (a) – the questionnaire – show some similarities between the second, third and fourth year students for the first three questions. In response to the first question, students feel that all elements of presentation have some importance, however perspective, technically drawn and rendered drawings – which may be categorized as more intricate, time-consuming and artistic aspects – are considered slightly more important, while architectural lettering and computer drawings are regarded as less significant for a successful jury presentation. (Figure 4) Responses to the second question indi-

Opposite & Above:  
Figure 4  
Examples of student  
work using different  
presentation  
techniques in Bilkent  
University

cate that, on an average, components of graphical presentation for final juries are valued as important as any other substantial topic – such as space planning – rendered in a design project (Figure 7). Responses to question three show that over 95% of the students feel that design juries place strong emphasis on graphical presentation (Figure 8) and rank this effect predominantly as 4.00 at a 5.00 scale (Figure 9). In response to question four, 47% of all students always and 43% frequently think that there is a strong correlation between ‘good design’ and ‘powerful graphical’ presentation. Interestingly, the data also shows that opinions on this relationship change from always to frequently – displaying a similar pattern to the instructors – as the years grow (Figure 10).

The findings of Part II (b) reveal the views of the instructors on questions three and four. All of the instructors feel that strong presentation influences assessment. (see Figure 6) However, they place less weight (3.4 at a 5.00 scale compared to 4.00 of the students) to it than the average of the students (see Figure 9). On an interesting note, many instructors feel the necessity to mark a differentiation between their assessment and that of the others in regards to the final presentation at a design jury by expressing their perception of the others as placing more emphasis in the matter. A majority of the instructors (88%) feel a strong correlation between design and presentation frequently, and none feel that there is rarely or never a relationship. (see Figure 8)

### **Concluding questions on the status of graphical presentation**

Results of the research indicate that the ‘enunciative accumulation’ of statements and their correlation with the main variants of education (student / instructor) establish a recognised position for graphical presentation. Furthermore, this position generates an institutional approval that regulates the process of the design studio. Specifically, the jury system appears as a ground upon which the concerns for presentation achieve utmost significance.

In this section the findings of the study – sound authority of presentation in studio environment – will be discussed through some questions in an attempt to evoke a re-evaluation of the conventional agreements and values on this authority; if it is a real power or a fallacious one. The source of the fallacy [19] suggested here might be the demand for a pleasant presentation of spaces, as well as agreeable spaces themselves. Yet, neither the concrete world of practice, nor the theoretical field of research and education in architecture/interiors discourse reserve a particular consideration on presentation. Against all the emphasis put on graphical presentation in evaluation systems, it is very rarely perceived as a substantial matter for theorists. Distant from significant critical, theoretical and conceptual endeavor, graphical presentation arranges the field of architecture/interior design with its own rules and procedures.

Regarding these considerations, the following sets of questions aim to accommodate a critical examination of the limits of presentation’s power, as well as to reveal the paradoxes it covers in education.

### **In regard to the design studio environment:**

- Is there a correlation between the time allocated to graphical presentation and its importance in final evaluation?
- When the system of evaluation establishes a supporting argument for the final product by promoting and favoring the expression of space through illustration boards and aesthetically organised drawings, is the student confused about the priorities of the design studio?
- If preparation of powerful graphics becomes the most important preoccupation of a design student because of its role in assessment, does it take away much valuable time from the design process?
- Should this arise questions in regards to its educational validity?

### **In regard to the design jury:**

- Why is such emphasis placed upon graphical

presentation in the design jury while limited consideration is given to it in the studio critics?

- Could one of the reasons for this emphasis have its roots in maintaining the prestige of the design jury, thus its members?
- Does the assessment system of a design jury ignore some phases while promoting others?

#### **In regard to theoretical aspects:**

- If a great emphasis is placed upon graphical presentation, why is it not pondered theoretically?
- Is it not a paradox not to be viewed as a substantial aspect of design to be theorized; yet one of the most important criteria in evaluating architectural/interior design students/projects?
- Then, how can its power over the evaluation of a project be explained against its apparent distance from the intellectual, professional and theoretical discussions?

#### **In general:**

- Can an emphasis upon presentation produce false conclusions that are not consistent with the real design process behind that presentation in the educational arena?
- If so, may the authority of the presentation emphasise stylistic concerns and repress content and more substantial issues of the project?
- Moreover, can a weakly articulated graphical presentation for an architectural/interior design jury degrade a powerful content?

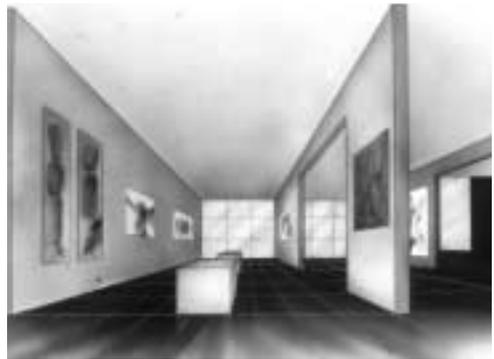
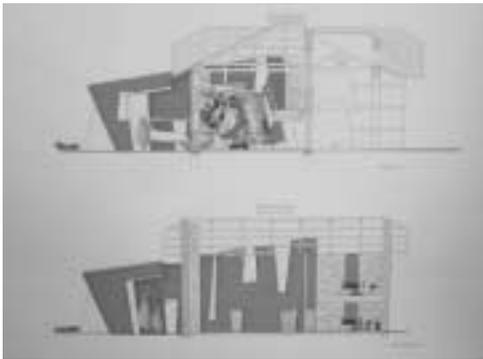
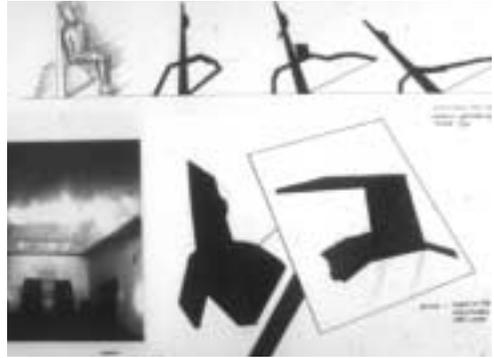
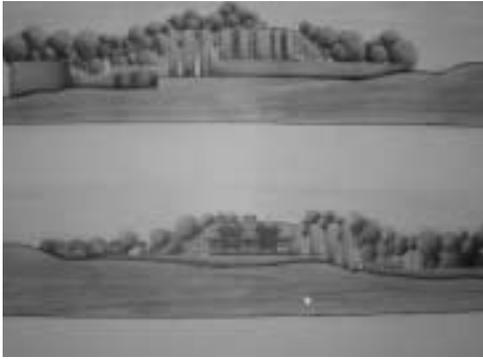
This study and all the possible questions it raises provoke the idea that the power of graphical presentation in the course of an architectural/interior design project can be considered as a fallacy in education. Proposing its authority as a fallacy undermines its status and challenges the dominant discourse of assessment in architectural/interior design studios.

#### **Appendix 1: Collection of statements**

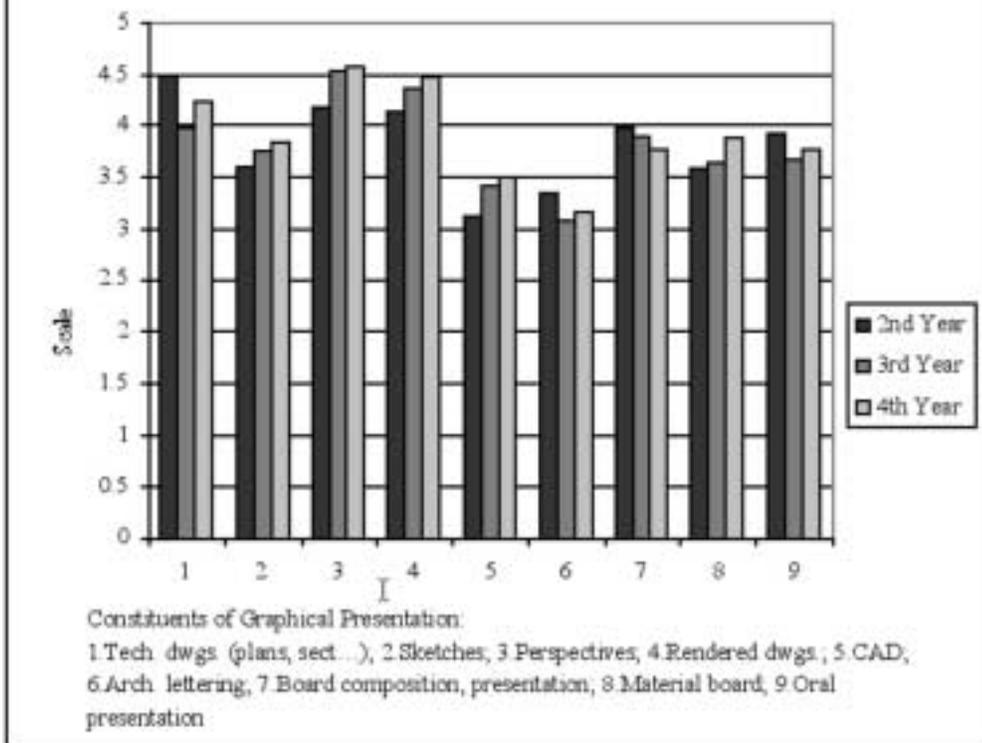
- Overpreparing a presentation can be just as

disastrous as underpreparing one [20].

- The formal presentation drawing, representing a structure whose every design detail has been formalized and whose use is more one of record ... is, by its very nature, far more about product than it is about process [21].
- The presentation of design will continue to see new forms of artistry, particularly as computers become more capable of simulation. What computer technology will find difficult to replace is the kind of magic that the human hand can bring to a drawing [22].
- Presentation graphics require an author to be more conscious of the drawing as a finished product, since they are intended to engage and persuade an outside audience [23].
- As buildings are built with the use of a variety of materials, so too can drawings of buildings – whether exteriors, interior spaces or landscaped views – be built when one possesses the knowledge of how to draw these materials [24].
- A successful presentation enables a client to understand, like and decide to build a project ... A successful presentation is an all-out effort for a single word: yes [25].
- Visual representation techniques play an important role in architectural practice... a great deal of information has to be communicated to third parties during the design and presentation stages [26].
- Presentation drawings are of utmost importance to the students as well as the practising architect for several reasons. By the nature of the profession we are providing a product which cannot be shown except in drawings or model form [27].
- In school the final product, instead of being a building, is a set of presentation drawings. Between presentations he should strive to improve... drawing ability, but he must respect its limitations in designing and "building" a presentation [28].
- Drawing is a way of speaking, a versatile language for spatial thinking that enables the



**Q1: Rank Constituents of Graphical Presentation According to Their Impact**  
(Scale: 5 indicates the most important)



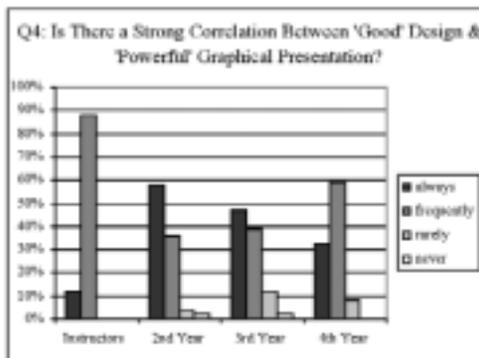
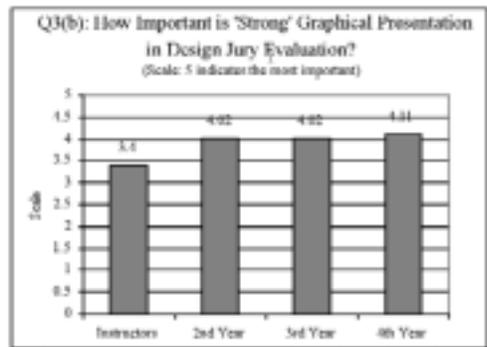
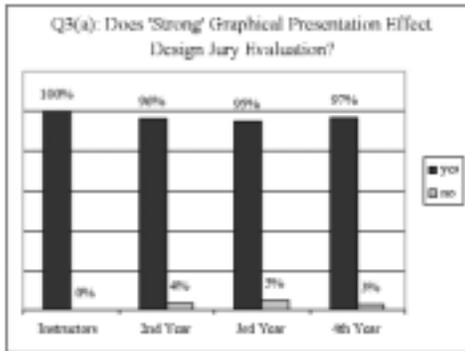
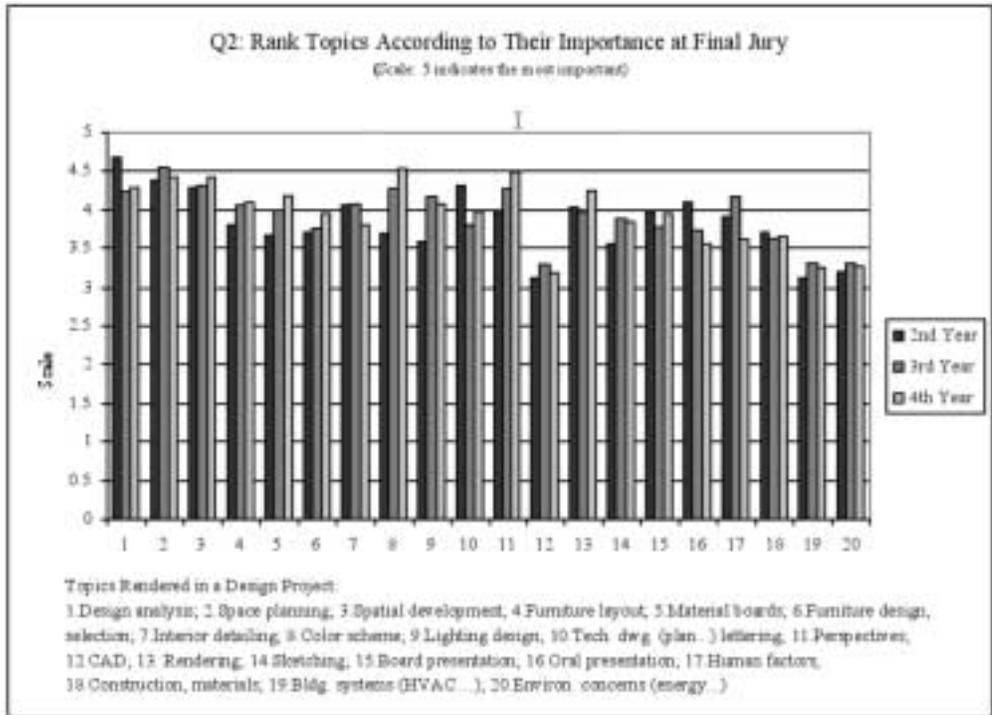
designer... to not only represent an idea or policy but to structure and organize the idea through the shaping process [29].

- Design in architecture depends on the use of visual language that replaces solid structures of brick, stone, steel and concrete with a fluid and rapid means of recording imagined possible forms [30].
- Graphics is an inseparable part of the design process, an important tool which provides the designer with the means not only of presenting a design proposal but also of communicating with himself and others in the design studio [31].
- Through drafting, we formulate our ideas and designs, and we convey our dreams to those around us for execution, in order to ultimately gain appreciation and admiration for the transformation of our concepts into reality [32].

- Throughout history, representation and design have been closely linked [33].
- The design cycle moves from its idea and experimentation stages (the private phase) to its final presentation (the public phase) [34].
- The drawing ... becomes not merely a medium of communication, but a tangible product which, regardless of any form or space which it may subsequently generate, is conceived as a vehicle of dissemination of design ideas perhaps even more powerful than the built form itself [35].
- Just as architecture and cities have their purpose or function, their mode of assemblage, and their design, i.e., artistic principles, so do architectural drawings. An architectural drawing may be analysed or classified according to its own design or geometry, its function

Opposite:  
Figure 5  
Examples of student work using different presentation techniques in Bilkent University

Above:  
Figure 6  
Chart displaying results to question 1



(that is, its place in the architectural designing process), or its materials and technique, i.e., its assemblage [36].

- While the finished building is often the product of economic and other compromises, and at its best represents a compatible collaborative effort, what the architect has 'on the boards', represents the purist expression of his architectural ideas and ideals [37].
- Each audience group has a different understanding of the design process and,

consequently different expectations. For effective communication, design graphics should be tailored with the understanding that expectations may vary [38].

- Drawing sets out in a material and instrumental form the potentials and the boundaries to the architectural imagination [39].
- The transformation from private to public is a routine part of any project's development, however: designers normally make their private study drawings according to the same graphic conventions that are used in public drawings so that the information in study drawings can be incorporated directly into subsequent work [40].

### Notes and references

1. An ideally finalized graphical presentation is composed of well-executed technical and free hand drawings such as plans, sections, interior and exterior elevations, perspectives, etc. as well as properly organised and graphically enriched material boards, conceptual representations, etc.

2. Anthony, K. (1991) *Design Juries on Trial*. New York: Van Nostrand Reinhold, p. 12.

3. This study sets its *research boundary* as the (educational) field of interior architecture. *'Circumscribing'* interior architecture education (rather than architecture) as *'the field of research'* is not to ignite territorial dispute or terminology in the fields of architecture and interior architecture, but because of both the position of design instructors and design students that the research here is undertaken for. However, the authors genuinely feel that same arguments, concepts, discussions ... can as well be applied to architecture education since they share the same (or similar) precepts as well as resources, such as textbooks, in terms of graphical presentation. For the concept of establishment of research boundaries (demarcation), see Jutla, R. S. (1996) 'An international approach to urban design', in *Design Methods: Theories, Research, Education and*

*Practice*, Vol. 30, No. 1, p. 2313

4. For the concepts of *mass of statements* and (to be) *institutionally defined* see Foucault, M. (1995) *The Archaeology of Knowledge*. (6th ed.) London: Routledge.

5. Anthony, K. *Op. cit*, p. 9.

6. Middleton, R. [Ed] (1982) *The Beaux-Arts*. Cambridge, Mass.: The MIT Press, p. 123.

7. Fraser, I. & Hemni, R. (1994) *Envisioning Architecture. An Analysis of Drawing*. New York: Van Nostrand Reinhold, p. 131.

8. Middleton, R. [Ed] *Op. cit*, p. 99.

9. Dutton, T. A. (1996) *Cultural Studies and Critical Pedagogy: Cultural Pedagogy and Architecture* in T. A. Dutton & L. H. Mann [Ed.] *Reconstructing Architecture*. Minneapolis: University of Minnesota Press, p. 158.

10. Teymur, N. (1982) *Environmental Discourse*. London: Question Press, p. 21.

11. Foucault, M. *Op. cit*, pp. 41-2.

12. *Ibid*. p. 122 .

13. *Ibid*. p. 109.

14. The term, *hidden statements*, is borrowed from M. Foucault. For the concept of *accumulation of statement*, see Foucault, M. (1995).

15. *Ibid*. pp. 95-6.

16. Teymur, N. *Op. cit*, p.24.

17. The questionnaire is given to the undergraduate students and design instructors of Dept. of Interior Architecture and Environmental Design, Bilkent University, Ankara-Turkey.

18. Potthoff, J. & Woods, B. (1997) 'Relationship between introductory interior design curricula and content of interior design textbooks,' *Journal of Family and Consumer Sciences*, Vol. 89, No. 3, pp. 42-47.

Opposite Top:  
Figure 7  
Chart displaying  
results to question 2

Opposite Middle  
Left:  
Figure 8  
Chart displaying  
responses to  
question 3 part a

Opposite Middle  
Right:  
Figure 9  
Chart displaying  
responses to  
question 3 part b

Opposite Bottom:  
Figure 10  
Chart displaying  
responses to  
question 4

19. Fallacies may be defined as, '*unsound arguments that are often persuasive because they can appear to be logical, because they usually appeal to our emotions and prejudices, and because they often support conclusions that we want to believe are accurate*'. Chaffee, J. (1991) *Thinking Critically*. Boston: Houghton Mifflin Company, p. 541.
20. Griffin, A. W. & Alvarez-Brunicardi, V. (1998) *Introduction to Architectural Presentation Graphics*. Upper Saddle River: Prentice Hall, p.8.
21. Schaller, T. W. (1997) *The Art of Architectural Drawing*. New York: Van Nostrand Reinhold, p. 128.
22. Burden, E. (1984) *Design Presentation*. New York: McGraw-Hill, p. VII.
23. Fraser, I. & Hemni, R. Op. cit, p. 131.
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