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Learning, Teaching and Administration in Design Education: DESIGNtrain Project: Training Tools for Developing Design Education

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Abstract

The paper targets, not only to introduce DESIGNtrain Project, which was completed within the scope of European Union, Life-Long Learning: Leonardo da Vinci Program, by ten partners from five European countries in 2009, but its aims and results within the topics of learning, teaching and administration in design education, as well. The purpose of DESIGNtrain project was to eliminate some problems of candidate students, who have not started their design education yet, and of the students, who recently began their design education. © 2009 Published by Elsevier Ltd. Open access under CC BY-NC-ND license.

Keywords: Design; Vocational Education; First Year Design Education.

1. Introduction

It is a fact that students entering the stage of making a choice for their professions in a university are not sufficiently informed about design education, nor the content and implementation of such education. This fact prompts the students think that they are not suitable for design education or to show a non-preference for design-related professions, since they are ill-informed. The students at the stage of making a choice have serious concerns as to whether their personal skills are sufficient to successfully complete design education. In addition, it is a reality that the present pre-university education system is not capable of training students with desired qualifications for design education. In this context, design education based on basic concepts such as “perception”, “comprehension”, “expression” shows difficulty in harmonizing with the student profile trained by the system mentioned (Kuloglu et al., 2009).

As students accepted to design departments with the above-drawn profile are not prepared for fundamental classes and form of thinking of design education by going through a preparation and entrance filter to systematic design, especially during the first years of education, they face serious harmonization problems (Kuloglu et al., 2009).

It is important for the schools providing design education to contribute candidate students considering obtaining a design education with access to fundamental classes and form of thinking of design education, to enable them to

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realize their skills and competencies in order to receive such education. It is another undeniable fact that integrating candidate students choosing a design department, by being informed about the education subjects and scope with design education, will be beneficial at both a personal and corporate level (Besgen Gencosmanoglu et al., 2010).

2. DESIGNtrain Project: Training Tools for Developing Design Education

DESIGNtrain: Training Tools for Developing Design Education is the only international project in the field of architectural design education considered worth being supported within the scope of the European Union, Leonardo da Vinci, Life Long Learning Program as of October 2006.

The purpose of the project is to remove harmonization problems of first-grade students to design training, who are candidates of and at the outset of design education. To this end, within the scope of the project, two individual models were created; and these models were presented as guidances for use by beneficiaries as of January 2010.

The target student groups consist of the first-grade students who are candidates of the design schools training designers or those being educated in the departments of architecture, interior design, urban planning, landscape design etc. It is considered that, target groups will have the opportunity to test, improve, change and harmonize themselves for design training by the means of these guidances. In the project developed for preparation and harmonization needs for design training, candidate students of design departments will have the opportunity to test and improve themselves by means of the “Vocational Guidance” and it is believed that the first-grade students currently being trained for design will overcome their harmonization issues especially during the first year of design training with the “Educational Guidance”. By using these guidances, cooperation will be provided between European countries having the same issues, cooperation and a common organization will be ensured through communication between institutions preparing students for design training and schools teaching design. DESIGNtrain Project can be summarized as follows in terms of product-beneficiary-training relationship in Table 1 (Besgen Gencosmanoglu et al., 2009; Kuloglu et al., 2009).

Table 1. Product-beneficiary-education relationship of DESIGNtrain project

<table>
<thead>
<tr>
<th>General Education Level</th>
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<tbody>
<tr>
<td>Improving Human Skills and Competence</td>
</tr>
<tr>
<td>Stage 1. Vocational Guidance: Self-Evaluation Unit</td>
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<tr>
<td>Vocational Training Level</td>
</tr>
<tr>
<td>Improving Quality of Vocational Training System and Applications</td>
</tr>
<tr>
<td>Stage 2. Educational Guidance: Supportive Unit Profession</td>
</tr>
<tr>
<td>Profession</td>
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2.1. DESIGNtrain Vocational Guidance: Self-Evaluation Unit

DESIGNtrain Vocational Guidance: Self-Evaluation Unit aims at measuring and evaluating basic levels, design, comprehension, perception, expression skills of candidate students intending to undergo design training. This advisory guidance for preliminary stage of design training was created as a “self-evaluation” unit within the framework of the current education system. Students using the guidance do not encounter a pre-judgment that they are not suitable for design professions, but simply find an environment to let them get to know and test themselves. Presented to users in an electronic environment along with support and communication tools, this guidance aims to enable the users to assess their own reactions and responses to “design-related vocations”, their tendency to “areas related to the scope of such vocations”, and “elements under the heading of design”. The guidance prepared in the internet-medium, in the form of a CD-Rom and manual provided services in 4 languages: Turkish, English, German and Italian. Each unit contains 20 questions and answers pages classified in groups, depending on the language preference.

A conceptual and theoretical content was determined while creating DESIGNtrain Vocational Guidance: Self-Evaluation Unit, and, all questions and answers were prepared within this framework (Table 2) (Asasoglu et al., 2009).
Table 2. Conceptual and theoretical framework of DESIGNtrain Vocational Guidance: Self-Evaluation Unit

<table>
<thead>
<tr>
<th>Design Concepts</th>
<th>Sub-Concepts (Content of Questions and Answers (Q/A))</th>
</tr>
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<tbody>
<tr>
<td><strong>Basic Knowledge</strong></td>
<td></td>
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</table>
| Skill and creativity | • thinking and understanding ability
  • creative thinking, … |
| Perception and expression | • 2D-3D interpretation
  • perception and expression of shape and forms
  • understanding and expressing basic geometric and organic forms, … |
| Imagination | • process of thinking and creating
  • representation, … |
| **Design Knowledge** | |
| Drawing knowledge | • understanding and expressing plan-section-elevation drawings
  • perspective knowledge, … |
| Fundamental design principles | • basic design principles: repetition, symmetry, balance, etc.
  • art and design relationship
  • typological, analogical, pragmatic, canonical and conceptual design approaches
  • functional, formal and semantic approaches, … |
| Structural knowledge | • understanding and expressing basic structural principles
  • basic materials and technology knowledge
  • technological innovations, … |
| **Human & Environment** | |
| Human and design (physical dimension) | • human and environmental knowledge
  • human needs
  • human dimensions
  • design for everybody, … |
| Human and design (psychological and sociological dimension) | • behaviour and space
  • culture
  • tradition
  • privacy, … |
| **Environment & Design** | |
| Context in design | • space and context
  • contextualism
  • identity, … |
| History | • design, styles and movements
  • cultural heritage
  • periods from antique to today, … |
| Natural and built environment | • nature
  • landscapes
  • cities, urban and region, … |

One sample of question and answer pages prepared within DESIGNtrain Vocational Guidance: Self-Evaluation Unit’s conceptual and theoretical framework can be summarized as in Table 3 (Kuloglu et al., 2009; Asasoglu et al., 2009; URL 1).

Table 3. One sample question/answer of DESIGNtrain Vocational Guidance: Self-Evaluation Unit
(for more details and questions/answers examples, please visit: http://www.designtrain-ldv.com)

**Question:**
Which comment is true for the first and second lines?

- a) 2nd line is two times longer than the 1st line
- b) 1st line is longer than the 2nd line
- c) 1st and 2nd lines have the same length
- d) 2nd line is longer than the 1st line
- e) None of them

**Answer:**

1

2
The true answer is C, because the first and the second lines have the same length, which is an illusion named as “Ponzo Illusion”. We can use this kind of illusions on a design for the diversion of a space. Please read the explanations;

Diversions in visual perceptions are likely to be seen in daily life. Although both of the red lines have the same length, number 1 line is seen to be shorter than the other. This is a visual diversion. Such diversions contribute designers’ creativity. Via diversions, spaces are presented to be more attractive than they appear. For example, a small space can be presented to be bigger via colour change or some space elements are made to be seen to be in front or back via diversion method. It is possible to increase the number of the possible examples. Benefit of diversion in designs is tested in this question by using “Ponzo Illusion”.

The Ponzo illusion is an optical illusion that was first demonstrated by the Italian psychologist Mario Ponzo (1882-1960) in 1913. He suggested that the human mind judges an object’s size based on its background. He showed this by drawing two identical lines across a pair of converging lines, similar to railway tracks. The upper line looks longer because we interpret the converging sides according to linear perspective as parallel lines receding into the distance. In this context, we interpret the upper line as though it were farther away, so we see it as longer, a farther object would have to be longer than a nearer one for both to produce retinal images of the same size.

One of the explanations for Ponzo illusion is the “perspective hypothesis”, which states that the perspective feature in the figure is obviously produced by the converging lines ordinarily associated with distance, that is, the two oblique lines appear to converge toward the horizon or a vanishing point. Another is the “framing effects hypothesis”, which says that the difference in the separation or gap of the horizontal lines from the framing converging lines may determine, or at least contribute to the magnitude of the distortion.

References: http://en.wikipedia.org/wiki/Ponzo_illusion

2.2. DESIGNtrain Educational Guidance: Supportive Unit

DESIGNtrain Educational Guidance: Supportive Unit aims at supporting the first-grade education constituting the basic education of design. The guidance intends to facilitate and speed up the students’ learning on “design”, “design concepts”, and “design-related professions”. The guidance provides basic information on “design tools”, “design method and techniques” and “design terminology”. Thus, first-grade students of design education back-up of the first year training, improve themselves using the question and answer pages and are more easily harmonized with the education. Students do not encounter any judgment as to whether they are suitable for these professions or not. The guidance prepared in the internet-medium, in the form of a CD-Rom and manual provided services in 4 languages: Turkish, English, German and Italian. Each unit contains 20 questions and answers pages classified in groups depending on the language preference.

A conceptual and theoretical content was determined while creating DESIGNtrain Educational Guidance: Supportive Unit, and, all questions and answers were prepared within this framework (Table 4) (Asasoglu et al., 2009).

| Table 4. Conceptual and theoretical framework of DESIGNtrain Educational Guidance: Supportive Unit |
| Design Education Related Issues at 1st Year Design Education |
| Design Concepts | Sub-Concepts (Content of Questions and Answers (Q/A)) |
| Perception and expression | • creative thinking |
| Technical drawing | • comprehending and drawing 3D objects, … |
| • descriptive geometry |
| • plan, section and elevation drawings |
| • types of perspectives; one-point, two-point, isometric, etc. |
| • some CAD programs; autodesk, archicad, 3D max, etc. |
| • models |
| • graphic techniques; human, tree, furniture figures, etc., … |
| Basic design | • Gestalt Theory and basic design elements; point, line, direction, proportion, shape, pattern, colour, etc. |
| • Gestalt Theory and basic design principles; visual communication and visual perception, figure-ground articulation, principles of proximity, similarity, continuity, closure and etc., … |

Q/A
| Human and environment | • human, function, space and design  
|                       | • human, form, space and design  
|                       | • human, culture, space and design  
|                       | • natural environment (topography, geography, climate, ecology and etc.)  
|                       | • built environment (site, city, space and etc.)  
|                       | • economy, …  
| Concepts of art and design | • aesthetics  
| History | • relationship between art and design: painting, sculpture, graphic, music, photography and etc., …  
| Design History & Architecture | • architectural history, styles, movements, periods, important architects  
|                      | • art history  
|                      | • relationship between architecture and art history  
|                      | • architecture, art, culture, tradition, design, …  
| Structural knowledge | • structure  
|                      | • construction  
|                      | • technology, …  
| Building | • building components  
| Construction & Structure | • building materials, …  
| Related Scientific Issues (Philosophy, Mathematics, Physics, Statistic and etc.) |
One sample of question and answer pages prepared within DESIGNtrain Educational Guidance: Supportive Unit’s conceptual and theoretical framework can be summarized as in Table 5 (Besgen Gencosmanoglu et al., 2009; Asasoglu et al., 2009; URL 1).

Table 5. One sample question/answer of DESIGNtrain Educational Guidance: Supportive Unit
(for more details and questions/answers examples, please visit: http://www.designtrain-ldv.com)

<table>
<thead>
<tr>
<th>Question:</th>
<th>Please look at the works of art and find the artist, who is one of the most famous modern architects of his age?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Answer:</strong></td>
<td>The true answer is C. In the question, the ambidextrous art perception of Le Corbusier who is known to be an artist, a sculptor, a furniture designer and an architect is aimed to be emphasized. Please read the explanations;</td>
</tr>
<tr>
<td></td>
<td>Charles-Edouard Jeanneret (1887-1965) known as Le Corbusier is a French architect of Swiss origin. He is well-known with his contribution in modernism and the international style. In the designs he created, those offering better living conditions for people dwelling in crowded cities are prominent. He had a long career, and he made important buildings in different parts of the world. At the same time, he is an urban planner and an author.</td>
</tr>
<tr>
<td></td>
<td>The artworks of Le Corbusier present in the options are given below;</td>
</tr>
<tr>
<td></td>
<td>Le Corbusier by Jean-Louis Cohen (2005); Le Corbusier by Kenneth Frampton (2001); Le Corbusier and the Continual Revolution in Architecture by Charles Jencks (2000); Le Corbusier, The Noble Savage by A.M. Vogt (1998); Le Corbusier’s Formative Years, ed. by H.A. Brooks (1997); Le Corbusier: Ideas and Forms by William J. R. Curtis (1986); From Bauhaus to Our House by Tom Wolfe (1981); Elements of a Synthesis by Stanislaus Von Moos (1979); The Open Hand. Essays on Le Corbusier, ed. by R. Walden (1977); Le Corbusier in Perspective by Peter Sereny (1975); Le Corbusier by Carlo Cresti (1970); Who Was Le Corbusier by Maurice Besset (1968); Chandigarh by Norma Evenson (1966); The Master Builders by Peter Blake (1960); Le Corbusier. Architect, Painter, Writer, ed. by S. Papadaki (1948).</td>
</tr>
<tr>
<td></td>
<td>References;</td>
</tr>
<tr>
<td></td>
<td>• Le Corbusier; <a href="http://en.wikipedia.org/wiki/Le_Corbusier">http://en.wikipedia.org/wiki/Le_Corbusier</a></td>
</tr>
<tr>
<td></td>
<td>• Still Life, <a href="http://www.moma.org/collection/browse_results.php?criteria=O%3AAD%3AE%3A3426&amp;page_number=2&amp;template_id=1&amp;sort_order=1">http://www.moma.org/collection/browse_results.php?criteria=O%3AAD%3AE%3A3426&amp;page_number=2&amp;template_id=1&amp;sort_order=1</a></td>
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<td></td>
<td>• Chaise Longue, <a href="http://www.classic-collection.it/le_corbusier_chaiselongue.htm">http://www.classic-collection.it/le_corbusier_chaiselongue.htm</a></td>
</tr>
<tr>
<td></td>
<td>• <a href="http://www.techitoutuk.com/knowledge/designhistory/historyods.html">http://www.techitoutuk.com/knowledge/designhistory/historyods.html</a></td>
</tr>
</tbody>
</table>
2.3. DESIGNtrain partnership

Project partners are selected among institutions that provide design training, associations of educational and vocational institutes, and Informatics Technology companies which are responsible for visualization and reproduction of products.

The promoter/coordinate of DESIGNtrain is Karadeniz Technical University, Faculty of Architecture, Turkey.

The partners of DESIGNtrain are;
Hochschule Bochum, University of Applied Sciences, Department of Architecture, Germany,
Politecnico Di Milano, Department of Architecture and Planning, Italy,
ELIA, European League of Institutes of the Arts, The Netherlands,
Anatole Consulting Ltd., United Kingdom,
Gazi University, Department of Architecture, Turkey,
OZDEBR, Union of Private Preparation and Training Courses, Turkey,
SOMDATA, Computer Ltd. Company, Turkey,
Ministry of National Education, Turkey and
Council of Higher Education, Turkey.

2.4. DESIGNtrain activities

Within the scope of DESIGNtrain, a number of meetings, congresses and conferences were organized with project partners for improvement of the project, and with different countries, institutions and establishments for introduction and dissemination of the project. These activities are;

DESIGNtrain Meeting-I, Karadeniz Technical University-Faculty of Architecture, Trabzon, Turkey, 27-29 November, 2006.
DESIGNtrain Meeting-II, Hochschule Bochum-Department of Architecture, Bochum, Germany, 7-9 March, 2007.
DESIGNtrain Meeting-IV, Politecnico Di Milano-Department of Architecture and Planning, Milan, Italy, 5-7 March, 2008.
DESIGNtrain Congress-Trailer II: Designing Design Education, ELIA, European League of Institutes of the Arts, Amsterdam, The Netherlands, 5-7 June, 2008.
DESIGNtrain Meeting-V, Karadeniz Technical University-Faculty of Architecture, Trabzon, Turkey, 17-17 January, 2009.
2.5. DESIGNtrain products

The products of DESIGNtrain Project were concluded in two stages. These products are as follows.

DESIGNtrain Website: http://www.designtrain-ldv.com: The site includes introductory information on the Leonardo da Vinci Program and all information about “DESIGNtrain: Training Tools for Developing Design Education”. DESIGNtrain website aims at forming the essential framework on which the project will be built in a transparent environment, maintaining direct communication with the partners and users, contributing directly to the activities, declaring detailed information on relevant individuals, institutions and activities, maintaining the continuity of the testable and developments which can be criticized in the process of forming the respective environment. Link to the DESIGNtrain website: http://www.designtrain-ldv.com is open for access. First threshold product; “Vocational Guidance: Self-Evaluation Unit” website is http://www.designtrain-ldv.com/vgt_index2.aspx and second threshold product; “Educational Guidance: Supportive Unit” website is http://www.designtrain-ldv.com/edu_index.aspx. All web site addresses are open for access.

DESIGNtrain Vocational Guidance Handbook: With the guidance prepared as a “self-evaluation unit”, the candidate users for profession selection are expected to evaluate their reactions and responses to issues about design and design-related professions. The handbook includes question and answer pages prepared in 4 languages: Turkish, English, German and Italian and classified in groups.

DESIGNtrain Educational Guidance Handbook: With the guidance prepared as a “supportive unit”, the first grade design students are expected to facilitate and speed up their learning on “design”, “design concepts”, and “design-related professions”. The handbook includes question and answer pages prepared in 4 languages: Turkish, English, German and Italian and classified in groups.

DESIGNtrain Vocational Guidance CD-Rom: With this CD-Rom that intends to introduce design professions and design concepts, candidate users for design training are given the chance to gain information and test themselves. The CD-Rom includes question and answer pages prepared in 4 languages: Turkish, English, German and Italian and classified in groups.

DESIGNtrain Educational Guidance CD-Rom: With this CD-Rom prepared for first grade design students, the students will support the information they get in the school during the first year; improve themselves with the question and answer pages and harmonize themselves more easily with the training. The CD-Rom includes question and answer pages prepared in 4 languages: Turkish, English, German and Italian and classified in groups.

DESIGNtrain Book: Training Tools for Developing Design Education: The DESIGNtrain Book is the main product of the project, briefly introducing the whole project process, design professions and including a given number of questions and answers from the Vocational Guidance: Self-Evaluation Unit and the Educational Guidance: Supportive Unit. DESIGNtrain Book is in English.

DESIGNtrain Congress Books: Two international congresses were held in the Netherlands in order to bring various researchers together to develop design education during the project, thus sharing developments in the design training and discussing relevant problems. The fruits of these congresses, declarations presented in the congress were published in two books. These are 1st International DESIGNtrain Congress Book: DESIGNtrain CONGRESS TRAILER 1-GUIDANCES in/for DESIGN TRAINING Proceeding, and 2nd International DESIGNtrain Congress Book: DESIGNtrain CONGRESS TRAILER 2-DESIGNing DESIGN EDUCATION, Proceedings Part 1-2-3.
3. Conclusion

After the architecture training was institutionalized, questions beginning with “what sort of an architecture education” started to question the architecture training of today, various contents, traditions and echolons created in the architecture training; and proposed different approaches to build the future of the training.

The future is a dream, it is abstract. Today is real, it is concrete. Today is what we touch, what we see. In this respect, facts to be carried forward to the future with all the rights and wrongs can only be touched today and propositions to be suggested as to the future of the architecture training rely on designing today (Besgen Gencosmanoglu, 2010).

In this context, the DESIGNtrain Project should be seen as an effort to solve the problems of the past in the time we are presently living. The main principles of the project are being aware of the facts of today in the field of design education, generating solutions to the problems of today, and thus dreaming of the future.

In this sense, the DESIGNtrain Project approaches the two facts of today; profession selection and basic vocational education problems with a new and different solution. As the first phase, concerns prevalent in Turkey for years regarding the choice of profession in general and in design education specifically are thought to eliminate with the resulting products of this project. The DESIGNtrain Project considered a contribution in raising consciousness will create awareness in secondary education students about design training, thus indecisions and failures during design education can be reduced. Students with a high level of interest, passion and awareness for design training can be channeled to relevant schools and a bridge between the two disconnected education systems can be built.

The second stage of the project intends to minimize the harmonization problems of the first year encountered during design training. The harmonization process to the training that has been discussed among academicians can be supported by the second stage products of the DESIGNtrain Project. The design and training will be made more easily accessible, comprehensible and shareable by means of a plain language. Thus, it will be possible to evaluate and improve the communication between design schools at the level of first grade as well as the quality of the education. The purpose of the project is not to accredit the whole design training programs, but during this initial step it is thought that establishing some criteria for the basic vocational education will set an example for all accreditation operations and reconciliation.

Future is built on change; it can only be reached by changing today.

Within this context, the DESIGNtrain Project is open to innovation by the nature of its purposes, scope and structure. Just like a growing organism, it can change and evolve in time. This evolution is expected to happen by the support of different traditions, cultures and formations, by the contributions of different people, ideas and approaches.

4. References


5. Acknowledgement

I would like to thank to my colleagues; Mrs Nilgun Kuloglu and Mr Ali Asasoglu for their great support in forming and concluding the DESIGNtrain Project.