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LEGO training. An educational program for vocational professions

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Abstract

At the present time, the conventional academic education for vocational professions in Romania strives to cover extensively the development of occupational skills. Alongside the theoretical part, the practical experiences play an important role in the process of continuing education and professional evolution of graduates. In real life situations, the theoretical aspects are better assimilated when combined with training oriented towards development of abilities for a positive interaction with clients, especially the managerial and soft skills. This study proposes a non-formal educational training program focused on improving certain skills required in vocational professions, especially relevant for architects, as identified through a questionnaire methodology. The concept is based on the LEGO game and the program beneficiaries are instructed on how to build a metaphorical construction of their existing and acquired skills out of color-coded blocks, each representing a set of abilities. This article underlines the main issues regarding institutionalized vocational education and presents the results of the survey as well as the development of a two-week learning program.

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1. Introduction

Worldwide, the character and the organization of lifelong learning programs for vocational professions, especially for architects, are highly developed. Associations such as RIBA (Royal Institute of British Architects) and AIA (The American Institute of Architects) request their licensed members to attend and complete a minimum number of annual courses. In our country, associations such as OAR / ROA (Romanian Architects Order), organize workshops

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and presentations, without having a legal regulated framework and, therefore, cannot be compulsory. At national level, continuing education is regarded in the National Sustainable Development Strategy 2013-2020-2030, issued by the Government of Romania in 2008 as “a priority” in terms of the need to remain competitive on the labor market, as well as social and personal development.

2. Lifelong learning programs

2.1. *Continuing education of architects – international trends*

The concern for the continuing education of architects is a strongly debated issue by associations like RIBA and AIA. For example, RIBA certified members must accumulate annually 35 hours of CPD (Continuing Professional Development), of which 20 are chosen from a compulsory curricular area and the remaining 15 hours out of optional courses, whose relevance is equated with a credit/ point system. The 20 hours will be distributed to all the 10 compulsory subjects from the curricular area, the percentage among these subjects depending on architects’ own interests and company’s needs. The curriculum is divided into three categories: general awareness, detailed knowledge, advanced knowledge. The courses can be organized by RIBA, independently, in collaboration with higher education institutions or by other associations. In addition to mandatory programs, there are a series of initiatives aiming to develop certain skills for the RIBA members. Courses are developed and implemented by teachers from specialized academic education system (The Sir John Cass Faculty of Art, Architecture and Design) and concern the architect-client relationship, architect-partners relationship, local legislation (RIBA Education and careers, www.architecture.com).

A similar approach is adopted by AIA (American Institute of Architects). At federal level is set a total of 12 hours of training in the HSW (health, safety, welfare) department of the CES (Continuing Education System). AIA adopted CES since 1994, through which are organized and centralized activities regarding the ongoing development of architects.

The compulsory accumulation of a minimal number of criteria is coupled with a flexible character of the educational programs, such as:

- all the courses have an organization alternative - Distance Learning, with participation exclusively online - Webinars;
- the courses are held either online/ live (with direct interaction student-instructor: live podcasts, video streaming, virtual tours) or on-demand (pre-recorded lectures online, accessible 24/7: computer-based training, correspondence, e-books).

This federal program is accompanied by MCE (Mandatory Continuing Education), whose characteristics are determined regionally. By AIA Virtual Convention are provided courses with a potential wider public as normal and are tracked issues such as sustainability, regional planning, health care, disaster recovery (AIA Continuing Education System: CES Guidelines for Members).

2.2. *Continuing education of architects – Architects’ Council of Europe recommendations*

The Architects’ Council of Europe (ACE), by adopting documents such as “Charta on continuing vocational training” (Nov. 2001) and “General Guidelines on continuing vocational training systems” (The Second General Assembly, 2006) outlined the interest shown by professional organizations of architects towards the development of a unified framework training program in the European Union, the topic being of both professional and public interest. The direction promoted by the ACE-drafted Charta implies the introduction of a unique training system whereby continuing education becomes a unified European policy, a structured and coherent activity, able to compensate for the differences amongst national higher education systems (General Guidelines on continuing vocational training systems, www.oar.org.ro).

Continuing education vocational programs are defined as the third stage in training the architects, following undergraduate education and integrated Masters (6 years) and professional internship (2 years for Romania). Since

2006, the Architects' Council of Europe has proposed a number of criteria that may support the national continuing education programs: organizational forms, funding methods, criteria for evaluation and accreditation of programs.

The central principle underlying the two aforementioned documents is that academic training, scientific research, practicing and continuing education are inseparable parts of the system able to respond to the accelerated evolution of contemporary socio-cultural framework. ACE recommends the introduction of a minimum set of requirements regarding training programs, the participation of architects being deemed as a moral obligation. According to this Charta the unified continuing education program should have been implemented in all EU Member States by 2010.

2.3. Continuing education of Romanian architects

Despite the worldwide trends and recommendations from EU professional organizations, in Romania, until now, there is no coherent lifelong learning program concerning the development of architects. However, different forms and continuing education opportunities are not missing completely from the field of architecture: exhibitions, presentations and lectures, roundtables, workshops. These are mostly organized at events such as the Annual and Biennale of Architecture, at regional and national level.

The great majority of these actions are carried out under aegis of ROA (Romanian Architects Order), the only national organization responsible for the "right to practice" certification, thereby the only institution capable of implementing such a unified system. The major issue refers to the lack of consistent and periodic programs, tested and certified. The current courses targeted by Romanian lifelong learning programs for architects refer to:

- modern construction technologies (presentations made by construction companies representatives, short lectures with mainly commercial purpose rather than educational);
- legal framework, architect - local governments relationship (lectures and roundtables coordinated by architects practitioners);
- digital design methodologies (computer aided design supported by architects and architecture students).

3. Study case - questionnaire methodology

Prior to the continuing education program proposed by this paper, was conducted a survey concerning the final year architecture students at "G. M. Cantacuzino" Faculty of Architecture from Iasi, intern architects and practicing licensed architects from the Northeast region.

The proposed questionnaire contained five questions and aimed at identifying the three elements relevant to the continuing education of architects: opportunity, organizational form, content. The questionnaire was distributed directly (within the Faculty of Architecture), in electronic format (via secretariat of the ROA branch Iasi) and by phone. There were interviewed 80 adults (16,35% of 489 total adults targeted by research) and the existing percentage between the three professional categories was maintained, as shown in the table below, Table 1.

Table 1. Adults targeted by research and surveyed adults

| | Total | Percentage of professional categories | Surveyed |
|-----------------------------------|-------|---------------------------------------|-----------------------|
| Final year architecture students | 180 | 36,8% | 31 |
| Intern architects | 46 | 9,4% | 7 |
| Licensed architects | 263 | 53,8% | 42 |
| Total adults targeted by research | | | Total surveyed adults |
| 489 | | | 80 (16,35%) |

Table 2. Questionnaire

| Continuing education programs for architects | Arch. Students | Arch. Interns | Arch. Licensed | All |
|---|----------------|---------------|----------------|------|
| Opportunity – Organizational forms – content | | | | |
| Q1. Participation of licensed architects (with the right to stamp projects) in continuing education programs must be: | | | | |
| a. Compulsory, with the accumulation of a minimum number of courses per year | 47,6 | 66,7 | 32,0 | 42,3 |
| b. Optional | 52,4 | 33,3 | 68,0 | 57,7 |
| Q2. Participation of intern architects in continuing education programs must be: | | | | |
| a. Compulsory, with the accumulation of a minimum number of courses per year | 42,9 | 83,3 | 56,0 | 53,8 |
| b. Optional | 57,14 | 16,7 | 44 | 46,2 |
| Q3. Most effective ways of organizing lifelong learning programs are: | | | | |
| a. Courses / Online Presentations | 23,8 | 66,7 | 52 | 42,3 |
| b. Lectures / workshops under the aegis of OAR, UAR or RUR | 47,6 | 66,7 | 32 | 42,3 |
| c. Presentations / workshops organized within specialized educational institutions (architecture, engineering, etc.) | 85,7 | 100 | 44 | 67,3 |
| d. Interactive training | 71,4 | 83,3 | 72 | 73,1 |
| Q4. Topics of interest for continuing education programs are: | | | | |
| a. New constructive technologies, experimental materials | 85,7 | 100 | 76 | 82,7 |
| b. Sustainability, renewable energies | 95,2 | 100 | 52 | 75 |
| c. Professional ethics | 53,4 | 50 | 48 | 50 |
| d. Architect-client relationship | 42,8 | 33,3 | 40 | 40,4 |
| e. Architect-architect and architect-engineer relationships, collaboration with specialists from complementary fields | 61,9 | 50 | 52 | 53,8 |
| f. Management for individual architectural offices and design firms, financial and legal advice | 57,1 | 83,3 | 48 | 55,8 |
| g. Marketing strategies (publicity, corporate identity, competition policies) | 47,6 | 66,7 | 48 | 50 |
| Q5. Continuing education programs for architects should be initiated by: | | | | |
| a. National professional organizations (OAR, UAR, RUR) | 90,5 | 100 | 68 | 80,8 |
| b. Organizations / non-profit associations in the fields of architecture and urbanism | 47,6 | 66,7 | 52 | 51,9 |
| c. Representatives of companies manufacturing construction materials | 23,8 | 33,3 | 28 | 26,9 |
| d. Higher education institutions | 47,6 | 50,0 | 32 | 40,4 |

The conclusions of the analysis, shown in Table 2, are:

- despite international trends, in Romania the continuing education for architects is not regarded as a pressing mandatory requirement;
- the most effective ways of organizing lifelong learning programs are interactive trainings, workshops within specialized educational institutions and online courses;
- the favorite topics for continuing education programs are new constructive technologies and experimental materials, sustainability, renewable energies;
- there is relatively little interest given to subjects such as ethics, deontology and architect-client relationship, although these have a great influence over the professional practice, with a direct impact on society;
- the respondents acknowledged that continuing education programs should be initiated mostly by professional organization of architects (ROA), Fig. 1.

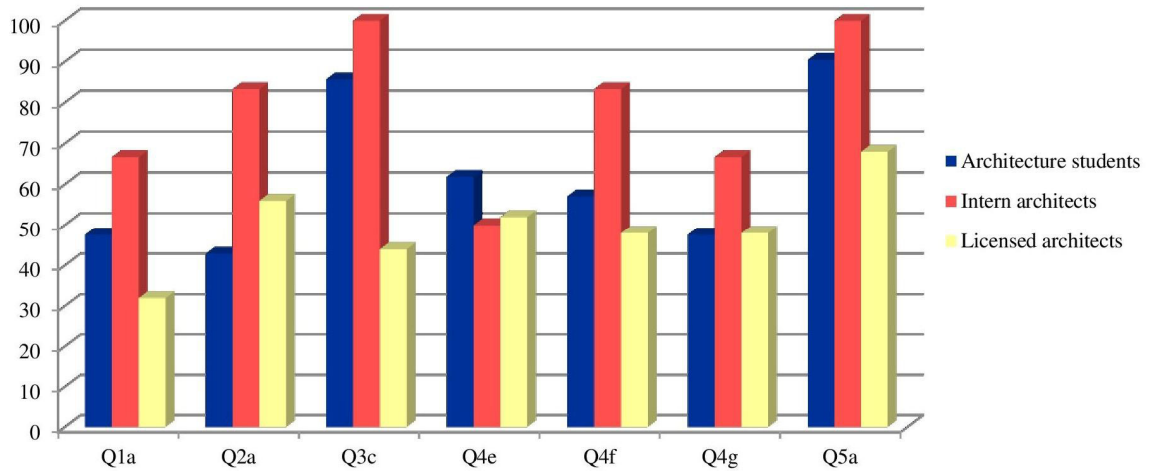


Fig. 1.Synthesis Chart of the questionnaire (the graph summarizes the most relevant answers for our research.)

4. LEGO training – the two-week learning program

After analyzing the survey’s conclusions, the educational program proposed in this article establishes as starting point the basic mechanics of LEGO - like constructions.

For most people and especially for architects the answer to the question “What childhood game influenced you most?” is definitely “LEGO”. Thereby, we might consider that LEGO constitutes a sine-qua-non prerequisite for children’s development towards future careers in architecture and civil engineering. In fact, the game that connects pieces (bricks) of different colours and sizes is essential for the intellectual evolution of any child.

Considering the above mentioned arguments, we can delineate a metaphorical analogy between real life strategies and LEGO – like constructions. In this manner, the primary goal of the LEGO training is to encourage architects to make an initial game plan that will help improve certain abilities required in their profession. Starting with three main categories of skills (colour – coded: yellow - technical, red - social, and blue – marketing and management), Fig. 2, the participant architects must imagine, until the end of the two-week program, their own LEGO Man, whose colour scheme depends on the initial game plan.

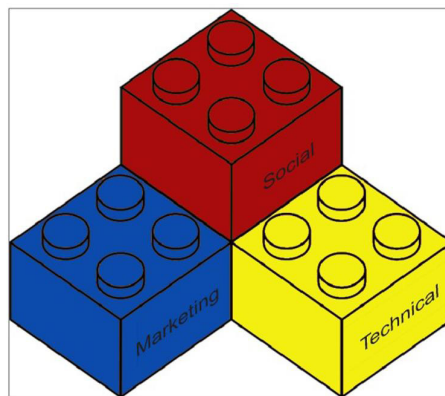


Fig. 2. Colour - coded blocks for the main three sections of the lifelong learning program: technical, social and marketing skills.

The architects can choose to acquire / improve one, two or all three types of abilities (with a specific percentage of each category: e.g., 20% technical skills + 50% social skills and 30% marketing and management skills).

4.1. Program description

At the beginning of the training, all participants are required to build their own LEGO Man as an image reflection of their own professional personality (color-coded self-assessment method). Thus, there are identified those categories and subcategories where improvements could be made by means of this program. The next step consists in creating a game plan which implies the accumulation of a set of knowledge and skills. Depending on what skills need to be learned and/ or improved, each architect will take part in different activities selected from the three sections of the program. At the end of the two-week training, the participant architects will have to remake a LEGO Man based on the accumulated LEGO blocks.

Therefore, a new colour scheme for the LEGO mini figure will emerge, Fig. 3. Depending on the initial game plan there will be made assessments to see whether or not the objectives have been met and if so, to what extent.

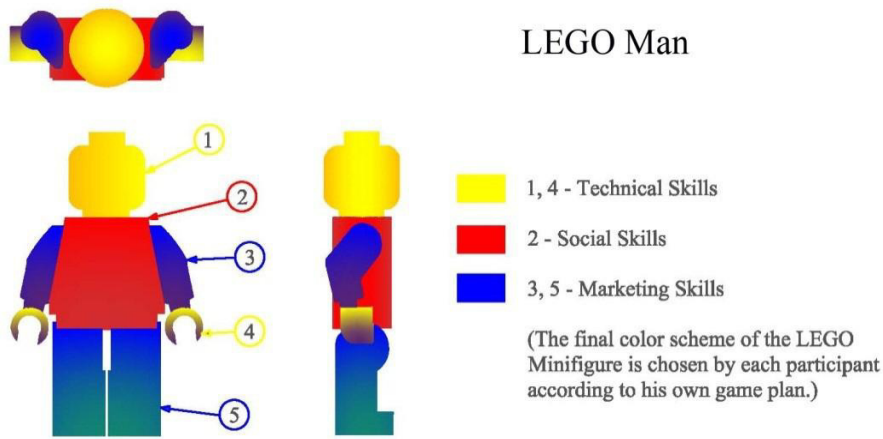


Fig. 3. Basic model (LEGO mini figure) proposed by the training's promoters – the balanced colour scheme is set according to three categories, considered of main importance for architects (there can be different subclasses under the auspices of the main category).

For example, after completing one or several stages of the Technical Skills Section, the architects will be awarded a set of LEGO blocks / bricks (the outcome is similar when stages from the other program's sections are completed). These color-coded pieces are added to the individual stack and are stored for future use when editing the final colour scheme for the LEGO Man. The main purpose is to acquire and/or improve different abilities that are essential for an architect's career (a better interaction with clients, efficient team work, how to promote a small business, etc.).

4.1.1. Technical upgrading skills

The *Technical Skills* Section of this lifelong learning program falls under the category related to Upgrading the Existing Abilities. From this standpoint, the enrolled architects can participate in a series of thematic presentations, within the framework of a Technical - oriented Conference (oral presentations, poster presentations, workshops). The purpose of this section is to summarize the latest trends in the field of architecture. The proposed topics follow the interests delineated by the questionnaire and include: new constructive techniques and experimental materials; sustainability and renewable energies; digital and alternative architectures, etc. Based on these introductory courses in the domain of choice, an E-learning Platform will be made available for each specialization. The high degree of access to information with the help of the computer, in most fields, is one of the factors that encourage the implementation of the E-learning courses.

4.1.2. Social skills

The *Social Skills* Section mainly refers to issues pertaining to professional ethics and bidirectional relationships that are established between architects, architect and client, architect and engineer or within the framework of technical collaborations, involving specialists from complementary fields (communication abilities). For a better development of an architect's social skills over a short period of time (two-week training sessions) there will be simulated as many real-life situations as possible. Therefore, the training will focus on team building activities that are both regarded from a cooperative and competitive standpoint (trust building exercises, multitask games, group debates, acting sessions, project presentations, etc.).

4.1.3. Marketing and management skills

The third Section of the LEGO training educational program concerns the *Marketing and management Skills*. The intrinsic importance of marketing and management abilities dictates the necessity of endorsed training for architects on effective ways of administrating their own businesses (there are small differences depending on the affiliation to either individual architectural offices or larger corporations). In order to accumulate certain professional data that validates participation to this section, there will be addressed important issues related to the architectural practice, such as: legal and financial advice, marketing strategies (office publicity, corporate identity, competition policies, etc.). Taking into consideration all the above mentioned aspects, the working schedule for participant architects will include lectures (held by qualified teaching staff) and seminars, the graduation of this section being conditioned by the implementation of a management project.

5. Conclusions

Continuing education for architects constitutes a mandatory requirement in several countries where lifelong learning has a well-established legal framework. As emphasized in this paper, in countries such as United Kingdom or United States, the professional associations of architects conduct various programs in order to ensure the competitiveness of its members and their ability to remain up to date in a field that requires great social and technical responsibility. In our country, continuing education for architects remains at the stage of desiderate. As revealed by the questionnaire conducted in this study, Romanian architects consider necessary to improve their skills and abilities through various types of lifelong learning programs. Based on the data collected, the LEGO training proposed by the authors targets various aspects of interest for architects in a format designed to be both appealing and instructive.

The project will be implemented by ROA in collaboration with "G. M. Cantacuzino" Faculty of Architecture, both institutions being in charge with facilitating the appropriate work environment, as well as advertising the events and disseminating the results. The ultimate goal would be to establish this program as a recurring event.

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