

Pathology of the educational program for the bachelor's degree in architectural engineering from the perspective of professional needs and employment

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Abstract

While one of the criteria for the effectiveness of an educational system from the perspective of a society at large is the alignment of graduates' learning with their professional employment needs, discussing the knowledge and skills domains of each job position has gained importance and requires further research. It is worth mentioning that the business environment in the present century is undergoing significant changes, and the critical examination of the quantitative and qualitative planning of educational fields requires frequent and continuous revisions. To this end, the current article represents an applied and developmental research that has a descriptive-analytical nature. It employs a qualitative method and a logical reasoning approach to comprehend the relationship between influential parameters in the common employment areas for graduates of architecture with the approved curriculum courses at the undergraduate level. To this end, a paired comparison of the skill-specialization parameters in architectural employment is used, along with a hierarchical analysis to assess the frequency of courses and the frequency of weighting criteria. Finally, it employs its own statistical and inductive analysis. As a result, it can be stated that the current educational programs established by the Ministry of Science, Research, and Technology, despite recent decade-long updates, still possess a rigid and inflexible structure, which is accompanied by a lack of suitable grounds for enhancing students' skillset and a lack of alignment with diverse professional environments. This leads to a high degree of similarity in the capabilities of graduates and their competition in specific jobs.

Keywords: Architecture Education, Employment, Professional Architecture, Business, University Education.

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Introduction

Although the scope of architectural education is related to a wide range of knowledge and skills, the diversity of these courses and their delivery to architecture students can be accompanied by different approach. (Crysler, 1995) Presenting the same information with a similar weight to all students turns them into dependent, passive, homogeneous subjects removed from social and political forces.

Despite the various criteria for selecting faculty members in the field of architecture, education requires dynamism and significant changes in form and timing. These changes might, with teachers' biases, harm the potentials of new students. Although this issue is sometimes addressed through workshops aimed at enhancing the skills of volunteers in non-academic settings (Hassanpour et al, 2013), it requires guidance from the university and the establishment of collaborative programs between the university and employment centers. (Akomaning, 2019)

Sustainable employment stems from examining the needs of the job market and aspects of employment for fostering education and consequently, creating competence among graduates (Hadizadeh et al, 2020). This requires flexibility in curricula, along with the development of optional courses. Additionally, it involves guiding students and identifying their talents within the university environment in comparison to the job market (Asgari et al, 2020).

This research aims to understand which aspects of employment architecture education introduces to students and to what extent students can address deficiencies in the educational system regarding entering the job market by advancing this issue. In this research, initially, the recognized aspects of employment in architecture and the talents and competencies required for each have been introduced. Then, the functioning and deficiencies of the educational system have been examined from this perspective. It should be noted that the entry into employment skills as a common literature with other fields is not the subject of the current research.

Methodology

Considering the goal of improving the level of the program and inventing more efficient systems in the field of employment, the present article is classified as applied-developmental research. In the same way, the issue of the employment of architecture graduates and how they entered each profession was discussed, and the reasons for success in each were investigated with the participation of the community of experts in the work process. This description and analysis in its nature and method has benefited from the process of descriptive-analytical research with reasoning and induction in the analysis of statistical results. In other words, the current research is based on the approach of logical mathematical reasoning.

In this regard, after examining the fields of potential employment for architecture students, the courses or learning needed by each one is evaluated.

In the research of logical reasoning, definition, relationship and expression are important and therefore, in the theoretical foundations of the research, the definitions of the fields of employment have been made, the undergraduate courses of architecture are categorized, and the internal relationships of each one are done by analytical tools, with the method of hierarchical process analysis by pair comparison through Expert Choice software.

The statistical population of the research includes graduates of the field of architecture, and in its non-probability sampling, the expert and specialized sampling method was carried out in an interactive manner under the model of the Delphi method. And with the premise that group judgment is more valid than individual judgment, the experts selected in a snowball manner in two periods of questioning and recording and reducing the answers have moved towards the results and by using the tools of questionnaires with relative scale and Likert scale, they have registered the results.

Results

To know the priority level and relationship between jobs and educational fields in the description of approved courses, the present research requires weighting and ranking between them and educational topics.

In this literature, each of the educational fields of the architecture field in the course description includes various courses in the continuous bachelor's course of architecture which will be presented as learning options and job analysis criteria related to them. To score comparison in this study, questionnaires are designed to use the comments of experts. The experts of this research, which include 15 architecture professors who are known as entrepreneurs in the field of employment, were selected through snowball sampling and in two stages, the criteria (fields of employment) were examined first and then the fields affecting each job have been measured from the perspective of success in that job.

While the focus of the approved program is on "Practical and Architectural Design Workshop" courses, the next priority was the courses "Technology of construction, materials and structures" and "History and theoretical foundations of architecture and urban planning". But to what extent are these categories welcomed by employment spaces?

To answer this question during the research, comparisons were made by experts regarding the importance of each course in specific activities.

The comparison of the teaching hours of the categorized courses with the opinions of the experts in the fields of employment showed that the approved program is more than in line with the comprehensiveness of the architecture field, it is in line with the needs of a part of this society who are interested in professional experience in the design environment. Also, the graduates who enter the construction and implementation jobs, mostly consider a large part of their learning in the continuous bachelor's course to be unrelated to their activity and they consider the necessary topics related to the workshop environment (project estimation, costs, financial affairs and workshop organization and contract) to be few and limited. It should be noted that the most obvious part of the inadequacy of the approved program is in covering jobs related to knowledge, technology, criticism, research, and consulting.

Discussion and conclusion

As mentioned, the current approved educational system has a rigid and one-dimensional foundation which has caused the assimilation of university graduates in having special skills and the tendency to enter fields limited to the literature of employment in the field of architecture. This problem shows the

necessity of change in the way of planning the field of architecture and it is necessary to evaluate the literature of the course description from a general perspective so that the capacity of flexibility in taking courses and consequently in the arrangement and evaluation of the students of this field increases. Undoubtedly, jobs that do not require specific skills do not require courses related to those skills to the extent of other jobs.

Therefore, as mentioned, how the five characters "designer", "executor", "scientist and technologist", "researcher-critic" and "consultant" are formed in the literature of architecture education can be investigated.

The author believes that the description of the proposed courses should be able to make changes in its structure based on the request of the students or based on the recognition of their talent, which is the responsibility of the educational system so that each of the required tasks and roles of this society finds time and space in the university structure and the diversity of graduates can reduce post-university education and to deepen the relationship of graduates with the work environment or profession.

This can be done by finding talent and experiencing various work environments with the support and guidance of the university in various periods of the student period and students' study courses should be chosen with more variety from among more comprehensive courses.

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