The Relationship Between Competences of Architectural Education and Architect Role for Professional Practice in Egypt

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ABSTRACT
The quality of architectural education and its relationship with professional practice is one of the important issues. Therefore, the research had studied the most important quality standards approved for architecture by the competent authorities represented by the Quality Assurance Authority in Egypt, which is affiliated with the Supreme Council of Egyptian Universities, and how the transformation of learning outcomes took place. In NARS 2009 to learning competencies NARS2018, as well as the international standards for architectural education issued by the International Union of Architects (UIA), then the most important courses taught by students of architecture during the study years were determined and the core courses were relied on, which are the focus of the study in the departments of architecture in Egyptian public universities, the role of Architects identified by the Egyptian Syndicate of Engineers as responsible for regulating the professional practice of architects, and then a questionnaire was made for the participants in this system, starting with the architectural student, the architecture teacher, graduates and members of the Syndicate of Engineers, to find out the suitability of the courses studied in the departments of architecture to architect role In an attempt to determine the extent of compatibility between architectural education and professional practice in Egypt, and the research reached a set of reliable results to develop plans for improving academic subjects, through which a higher percentage of the required competencies can be achieved, as well as assisting the architect in performing the role required of him in professional practice.

Keywords: *Architectural Education; Competences; Professional Practice.*

1. Introduction
Academic architectural education started with the inauguration of the Académie d'Architecture in 1671 in France. It was the first institution to be devoted solely to the study of architecture, The Académie was abolished in 1793, during the revolutionary turmoil that besieged France at the end of the eighteenth century[1].

Then The teaching of architecture began again at the beginning of the 19th century, as it happened in France, where the School of Beaux-Art was established in 1803, and then in Germany, where the Bauhaus School was established in 1906, It was at this time that design and planning were being studied together as architects such as Le Corbusier and Frank Lloyd Wright were developing theories of architectural design and planning[2].

In Egypt, we find that architectural education began in 1858 when the Faculty of Engineering was called Al-Muhandis Khana, affiliated to King Fouad I University, Cairo University now. As is the case during the first half of the 20th century, architectural design and planning were taught together until they were separated in 1964 when the Department of Urban Planning, Faculty of Engineering, Al-Azhar University Was established[3].

1.1. Research Problem:
The lack of relationship clarity and the gap between the competencies of architectural education and the role of the architect in professional practice in Egypt.

1.2. Research Objectives
Monitoring the competencies of Architectural education.

Knowing the role of the architect in professional practice in Egypt.

Determine the relationship between the basic courses taught to students of architecture and the educational competencies to be achieved.

Determine the relationship between the basic courses taught to architecture students and the role of the architect, according to the Egyptian Syndicate of Engineers.

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225

1.3. Research Methodology & Methods:
Relying on the inductive-analytical approach through previous research and studies then analyzing the elements involved in the quality of architectural education by determining the specific competencies of the architectural student in the subjects prescribed during the study, then analyzing the role of the architect to practice the profession, with a set of questionnaires for a group of students, teachers of architecture, architects and members of the engineers Syndicate.

2. Architectural Education in Egypt:
In Egypt there are 27 public universities, 22 universities that contain Architecture Department in the Faculties of Engineering, next to two departments of architecture under establishment at Matrouh and Damanhour University, while there is no Architecture Department in the Universities of Arish, New Valley and Luxor, this is beside the in the Faculties of Fine Arts in Egyptian universities[11].

The main objective of education, in general, is to meet the needs and requirements of the society it serves. In Egypt, the architectural education is presented as an engineering program that follows the engineering faculties in most Egyptian universities - unlike some fine arts faculties that have the Department of Architecture - and the programs of Planning is taught in the departments of architecture in the faculties of engineering, except for the faculties of regional and urban planning, Cairo University, and urban planning at Al-Azhar University[4].

The bachelor degree in Engineering is a level 5 qualification on the Egyptian National Qualification Framework. According to the Egyptian NQF descriptors.[14]

The Architecture Department belongs to the Faculty of Engineering in Egyptian universities. The Bachelor of Architecture lasts four years, In addition to a preparatory year. The academic year may be in credit-hour or in the two-semester, and in the last semester the graduation project is.

2.1. Relationship between Education and Professional practice regulations:
"Continuous interaction between (the) Practice and teaching of architecture must be encouraged and protected." Mainly, architectural education prepares students for a professional career, opportunities should be available for the teaching establishments to ensure that teachers, graduates, students and other participants who shape the built environment, are given the opportunity to meet, discuss, connect and establish long-term partnerships for the exchange of information, ideas and experiences[10].

2.2. The Core Course of Architectural Education:
The study within the Department of Architecture depends primarily on the study of a group of courses, which is divided into four main groups according to the Supreme Council of Universities 2007 in Egypt, in addition to basic sciences and elective courses, they are:
- Architectural Design
- Architectural construction and structural systems
- Urban planning
- Environmental planning and design.

The previous groups are taught through various courses represented in architectural design, architectural construction, executive designs and planning. The name of the courses may differ from the architecture department and so on depending on the name of the course.

In general, the courses of architectural design, architectural construction, executive design and planning are the core of architectural education.

In Egypt, There is an important note when discussing architect's role and the courses studied and whether the graduate has taken courses related to different issues, which explain that not all roles of architect are covered in courses according to the Syndicate of Engineers. It varies from one to another (Table1)[4].

Table1: Egyptian architectural education undergraduate programs and architect role [4]*

Arch. Role,	Cairo Uni.	Azhar Uni.	Ain shams Uni.	
	Faculty of Eng.	Faculty of Eng.	Faculty of Eng.	
	Arch. Department	Arch. Department	Arch. Department	
			Arch.	Urban design
R.1	√	√	√	√
R.2	√	√	√	√
R.3	X	√	√	√
R.4	X	√	√	√
R.5	√	√	X	√
R.6	√	√		√
R.7	X	X	X	√
R.8	X	X	X	√
R.9	√	X	X	√
R.10	X	X	X	X
R.11	√	√	√	√
R.12	X	X	X	X
R.13	X	√	√	√

R. refer to Architect role, in 6.1 section
* *Comparison is based on core courses during Undergraduate study, it ignores electives courses.*

3. Quality of Architecture Education:
3.1. The Supreme Council of Universities in Egypt:
The Supreme Council of Universities (SCU) that is responsible for supervision on all Egyptian universities has established the Sector of Environment Affairs and Community Service (SEACS) in all universities and faculties. These sectors aim to raise awareness concerning sustainability, environmental issues and serving the community. The SCU has also established the National Authority for Quality Assurance and Accreditation of Education (NAQAAE) in November 2007. It mainly aims at increasing quality of education, assuring its continuous development and accrediting educational authorities through independent, justified and transparent procedures. The NAQAAE is adopting the National Accreditation Regulatory Standards (NARS 2009) for all educational programs in Egypt. Accordingly, architectural education programs are applying those standards that include "knowledge and understanding", "intellectual skills", "general and transferable skills" and "practical and professional skills" for both Engineering discipline and Architecture discipline[5].

Then The NAQAAE issued new standards in 2018 (NARS 2018) which included 5 basic competences for architectural education in addition to the general competences that are acquired during the study.

3.2. The Concept of Competencies in NARS 2009:
The National Academic Reference Standards (NARS) provide a means for the academic community to describe the nature and characteristics of programs in different specific areas. They also represent general expectations about standards for the award of qualifications at a given level, in terms of the attributes and capabilities that those possessing such qualifications should have demonstrated.

The NARS also provides support to institutions in their pursuit for internal quality assurance. They enable the learning outcomes specified for a particular program to be reviewed and evaluated relative to standard reference expectations. The NARS statements allow for flexibility and innovation in program design, and can stimulate academic discussion and debate upon the contents of new and existing programs within an agreed overall framework.

The learning outcomes are expressed as threshold levels that engineering students are expected to achieve upon graduation. It is anticipated that many programs may exceed these levels. Program providers may therefore use NARS to establish standards for a diverse range of programs with

innovation and creativity in curriculum design. The NARS and NARS Characterization for the engineering disciplines are introduced in a single book, starting with a first section covering the Engineering in general. The following sections are dedicated to different engineering disciplines.[15]

3.3. The Concept of Competencies in NARS 2018:
National Academic Reference Standards were published in 2009 as outcome-based standards. In the last ten years there has been a significant progress -on the international level-in education. NAQAAE, to align with international engineering updated standards, and shift the Egyptian NARS from learning outcomes to competency based.

The need for various educational institutions, including those that provide architectural education, provide standards and competencies that help raise the professional competence of graduates to meet the needs of the professional practice requirements, which serves as a basis for the educational process and professional practice of the graduate.

To help educational institutions to protect the requirements, students and graduates themselves, NAQAAE has developed Subject Specific National Academic Reference Standards (NARS) for engineering educational programs as well as for other subject sectors. The NARS-Engineering are meant to express the stakeholders' expectations about the graduate of an engineering school in Egypt, defining the attributes and competencies that holders of the qualification "Bachelor Degree in Engineering" in the different engineering sectors should exhibit[14].

3.4. The shift to competency-based engineering education:
Historically, engineering education has been a "Structured Process", based on a learning model that is time and teacher centered, where studying standardized courses, learning skills and participating in a projects and years of training were the determinants of completing an engineering educational program.

In the recent past a shift occurred to the Learning Outcomes (LO)-based education, where intended learning outcomes were articulated in the form of Knowledge, Skills and Attitudes that a student must achieve. Despite its being a relatively successful student centered and outcome-oriented model for education; the LO based education model worked with a critical assumption that achieving separate learning outcomes (that were often subject-specific) will enable the engineering graduate to reach an appropriate level of competence to practice with some degree of autonomy. It was also based on the

assumption that all learners would achieve the outcomes within the same time-based model.

Through the past decade, with higher societal expectations from graduates to demonstrate the development of higher competence standards and with the culminating literature supporting the value of integrated learning, the engineering education worldwide responded by a paradigm shift towards a more holistic and integrated approach to education that is competency-based education (CBE).

CBE thus emerged out of a need to focus engineering education on developing learners' competencies and engaging them in real life experiences, and to emphasize learners' abilities and foster the good practices of integrated learning.[6]

3.5. Competencies of basic Architecture engineering in Egypt:

Graduate Attributes and competencies in accordance with the national academic standards (NARS 2018):
Architecture engineering graduate must be able to:

1. Create architectural, urban and planning designs that satisfy both aesthetic and technical requirements, using adequate knowledge of: history and theory, related fine arts, local culture and heritage, technologies and human sciences.

2. Produce designs that meet building users' requirements through understanding the relationship between people and buildings, and between buildings and their environment; and the need to relate buildings and the spaces between them to human needs and scale.

3. Generate ecologically responsible, environmental conservation and rehabilitation designs; through understanding of: structural design, construction, technology and engineering problems associated with building designs.

4. Transform design concepts into buildings and integrate plans into overall planning within the constraints delivery; while having adequate knowledge of industries, organizations, regulations and procedures involved of project financing, project management, cost control and methods of project.

5. Prepare design project briefs and documents and understand the context of the architect in the construction industry, including the architect's role in the processes of bidding, procurement of architectural services and building production[6].

4. International organizations for architectural education and professional practice:

It is evident that increased globalization and outsourcing of architectural work entail a need to improve the quality of architectural education and professional practice. Therefore, international and national organizations, professional associations, e.g., licensing boards in different countries such as National Council of Architectural Registration Boards (NCARB), Royal Institute of British Architects (RIBA), International Union of Architects (UIA), the American Institute of Architects (AIA) etc. were established to raise the overall architectural professional standards. Those professional associations and licensing boards have pushed for agendas that require curriculum development to ensure the quality of architectural education outcomes. In addition, they have required practical training as a part of the educational process have to complete before their registration[8].

4.1. UIA Guidelines for Evaluating Architectural Education Study Programs and Their Outcomes;
The study program is 5 years of full-time studies, in a university or equivalent establishment, plus at least 2 years of practical experience in an architect's office, of which 1 year may take place before graduation and 1 at the end of the study program, the student to reach the necessary competency and maturity.
Guideline NO. 1.
"THAT the Basic First Stage Architectural Education -The first two or three years - should establish the core principles and basic architectural knowledge to develop awareness of, and aptitude to, design, co-ordinate and carry out projects".
Guideline NO. 2.
"THAT the Second Stage Professional Architectural Education should continue the core principles, the curricula and the calendar year rhythm set in the Basic First Stage Architectural Education, and it should promote the need for the continuation of excellent staffing resources, coupled with a flexible approach to the structure and content of the study program, examined through unit outcomes, including a mature understanding of the controlling influence of environmental, structural and technological issues on design and building form, as well as an appreciation of cultural and social issues, visual art disciplines, their influence on design, and be aware of various institutional and legal as well as constructional processes involved in the design of complex buildings"[16].
Guideline NO. 3.
"THAT the basic content of study programs should be encouraged to conform with the UNESCO-UIA Charter for Architectural Education".
Guideline NO. 4.
"THAT the outcomes of the study programs assure that architectural students, by the end of their studies, acquire the capabilities of Design, Knowledge and Skill, to fulfil the architect's role as a generalist capable of coordinating interdisciplinary objectives".

Guideline NO. 5.
"THAT, as UIA is committed to the principle of portability of educational qualifications in architecture and educational experience, architectural education study programs in all Member countries of the UIA should be provided to a standard and scope that enables local, regional and international recognition of qualifications at each key stage, whilst acknowledging local variations".[16]

5. The compatibility between the competencies of architecture education in Egypt and UIA Guidelines:
By reviewing and analyzing the competencies of Egyptian architectural education, which are represented in five competencies section 3.5, we find the following:
The first and second competences deal with architectural, urban design and planning to achieve aesthetic and technical requirements through historical and theoretical knowledge of culture and human sciences on the one hand, and to achieve the requirements of users through the relationship between users, the building and the environment.
The third competence deals with how to preserve the environment through the use of materials compatible with it, as well as construction methods.
The fourth competence deals with how to convert design ideas into executable buildings with the presence of the regulatory requirements for that, and also from an economic point of view.
The fifth competence relates to the processing of necessary documents and knowledge of the role of the architect in the construction industry.
On the other hand, and by reviewing and analyzing the guidelines of the International Union of Architects UIA for Architectural Education, section 4.1, we find the following:
The first guide deals, with the basic and knowledge elements of architecture in order to develop awareness and preparation for architectural design.
The second guide, deals with environmental, construction, and technological issues, as well as cultural and social trends, the arts and their relationship to architecture, in addition to the legal aspects related to the design process.
The third guide, linking academic courses to the UNESCO Charter on Architectural Education.
The fourth guide, Acquisition of design, knowledge and skill capabilities to help the architect in performing his multiple roles.
Fifth Guide, encouraging the recognition of courses and academic qualifications locally, regionally and globally, taking into account local differences
The previous discussion shows that the competencies

of the Egyptian architectural education need to add some elements to it that make it globally recognized and to make partnerships with institutions interested in global architectural education such as UNESCO, as well as clarifying the role of the architect locally and globally within the academic curricula so that the architectural student can know that during his studies in the competencies.

6. Professional practice Regulations in Egypt:
In Egypt, the Egyptian Engineers Syndicate is the official leading professional organizations that work with the Egyptian Higher Education Ministry to develop the quality of engineering and the architecture education and practice[9].
So, According to Egyptian Law (Egyptian Government, 1974) the Egyptian Engineers Syndicate is the organization with the power to regulate all engineering professions including architecture. Architectural Engineering Branch Regulations, Professional Practice Regulations, where the first article states that the role of the architect includes eight main points starting with the development of the architectural design, the operational drawing, the conduct of contracts, the bid documents, and the supervision of implementation. Second: Rural and town planning, design of land use plans and land budget, and all issues related to urban planning, road and traffic design. The third relates to infrastructure, urban design, interior design, acoustics and lighting. The role of the architect according to the Egyptian Syndicate of Engineering Professions includes all duties related to the built environment[7].

6.1. Role of Architect (According to Egyptian engineers syndicate regulations);
The role of architect is represented in the following points as identified by the syndicate regulations:
1. Architectural design development.
2. Working drawing.
3. Conducting contracts and implementation supervision.
4. Tender documents and revising construction process.
5. Rural planning and city planning.
6. Designing land use plans and land budget.
7. All issues related to urban planning.
8. Roads and traffic design.
9. Governing built environment, Planning and Landscaping piazzas and roads.
10. Interior Design.
11. Acoustics and illumination in public buildings.
12. Manufacture of construction materials, precast buildings.
13. Building and construction Previews and technical reports.

After studying the three basic elements responsible for the architect, from being a student to becoming an architect practicing the profession of architecture, which are represented in architectural education the most important courses that are studied quality standards in the educational process, and the role of the architect defined by the Syndicate of Engineers (Fig1), an analysis can be made of the extent of relationship between the three elements as follows:
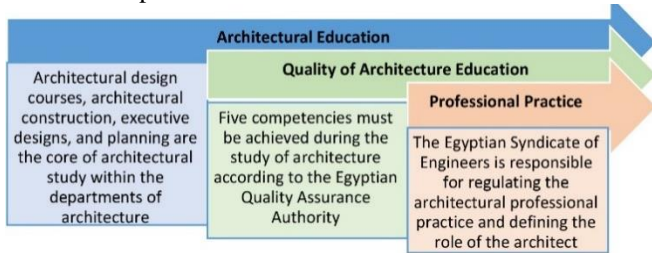

Figure 1 the basic elements linking the quality of architectural education and professional practice.

6.2. Challenges facing Architects in Egypt

Due to a lack of coordination between the Syndicate of Engineers and the departments of architecture in Egyptian universities, the role of an architect is to carry out all the work related to the built environment without considering his studies before graduation, which makes the architect deal with a wide range of sciences related to the building. Architects in Egypt are also regulated by regulations governing their work, which make planning one of the tasks they are responsible for, including: urban planners, landscape architects, urban designers, and interior designer as well[7].

7. Questionnaire Design:

Participants in the educational process and participants in the profession in Egypt were surveyed. These included, architecture students and staff in Egyptian universities (Mansoura, Kafr Elsheikh, Tanta and Alexandria Universities), graduate architects, as well as some members of the Engineers Syndicate (Fig2), through two questionnaires as follows:
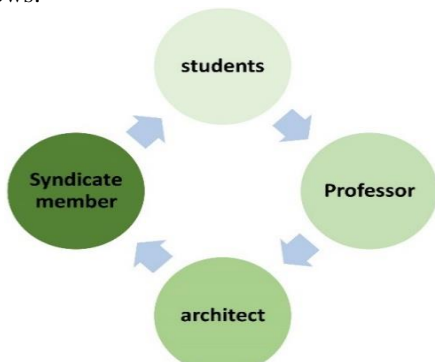

Figure 2 Questionnaire participants

A First questionnaire to find out the suitability of the Core courses taught by the departments of architecture, namely, architectural design - architectural construction - executive designs and planning since they are the focus of applying quality standards and competencies that the architecture student should understand.

A second questionnaire to find out the suitability of the Core courses taught by the departments of architecture, namely, architectural design - architectural construction - executive designs and planning as a focus of assistance for architects in fulfilling their professional roles.

7.1. Questionnaire 1: (Between Core courses and Competencies)

The first questionnaire dealt with the relationship between the Core courses in architecture programs and the five competencies needed for architectural education quality (C: Competences), through a series of questions that the participant answered either with Yes or No or Maybe. A group of architecture students and faculty members participated in this questionnaire[13] (P: Participant) (Table2).

Table2: Result of second Questionnaire: (Between Core courses and Competences), the author.

P	Students			Staff M.			Total Ave.		
C. R	**Y. %**	**N. %**	**M. %**	**Y. %**	**N. %**	**M. %**	**Y. %**	**N. %**	**M. %**
1	34	14	52	0	0	100	17	7	76
2	60	0	40	50	16	34	55	8	37
3	27	20	53	50	33	17	39	27	34
4	20	27	53	0	84	16	10	56	34
5	40	20	40	67	0	33	54	10	36

P: Participant C.: Competences R: Response Y.: Yes N.: No M.: Maybe

From table2, the results of students differ from the results of staff members in the percentage of competencies and appear more in the fourth competence, After collecting the results of the participants and calculating the average of the results in the last part of table2, with yes and no and maybe, there is agreement between 3 competencies with the Courses, also the results differ in terms of the percentage of the courses achieving quality competencies, as in the second, third and fifth competencies, where the answer was yes is higher, while the first competencies answer is maybe higher. While there are shortcomings in the fourth competency which belong to transform design concepts into buildings and integrate plans into overall planning within the constraints delivery;

while having adequate knowledge of industries, organizations, regulations and procedures.
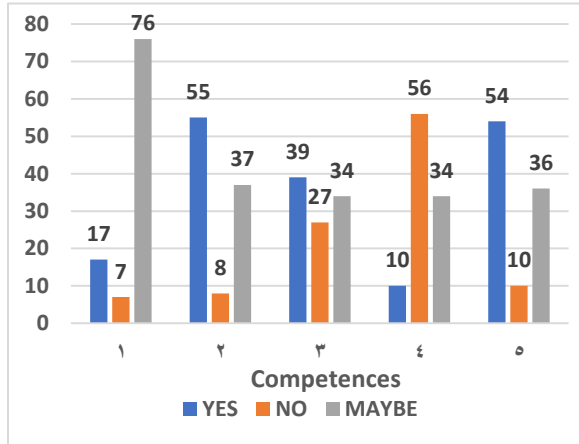

Figure 3 Percentage verification of each competence in Core courses[11].

And as it appears in the figure 3 the percentage of achieving each competence with the core courses the first competence achieved the highest percentage of verification, with 93%, with yes and maybe.

7.2. Questionnaire2: (Between Core courses and Architect Role)

The second questionnaire dealt with the relationship between the Core courses in the departments of architecture and the role of the architect in Egypt, specified, through a series of questions that the participant answers either Yes or No or Maybe. A group of architecture students, staff members, architects and members of the Engineers Syndicate participated in a questionnaire [14] (Table3).

From table 3, the results are compatible in terms of the extent to which the courses agree with the role in some and are incompatible with another.

Collecting results of yes and maybe and calculating the average first, second, fifth, seventh, ninth, tenth and eleventh roles have achieved higher results.

While the third, fourth, sixth, eighth, twelfth and thirteenth roles achieve lower results for the compatibility of the core courses with architect role.

Figure 4 percentage of achieving each point for the architect role with the core courses, the second architect role achieved the highest percentage of verification, with a total of 96%, with yes and maybe.

Table3: Result of second Questionnaire: (Between Core courses and Architect Role), The author.

P R.	Students			Staff M.			Architect			Syndicate M.			Total Ave.		
	Y.%	N.%	M.%	Y.%	N.%	M.%	Y.%	N.%	M.%	Y.%	N.%	M.%	Y.%	N.%	M.%
1	52	19	29	68	0	32	34	0	66	66	0	34	55	5	40
2	46	16	38	68	0	32	66	0	34	100	0	0	70	4	26
3	14	43	43	0	62	38	0	50	50	66	34	0	20	48	32
4	14	57	29	6	62	32	0	83	17	66	34	0	22	59	19
5	38	27	34	50	0	50	34	0	66	66	0	34	47	7	46
6	38	43	19	0	43	57	17	50	33	66	34	0	31	43	26
7	22	43	35	13	24	63	34	17	49	66	34	0	34	30	36
8	19	46	35	0	75	25	0	34	66	66	0	34	22	39	39
9	33	22	45	19	25	56	50	17	33	100	0	0	51	16	33
10	51	30	19	44	0	56	67	0	33	100	0	0	66	8	26
11	30	46	24	13	13	74	34	16	50	66	0	34	36	19	45
12	16	57	27	0	75	25	17	16	67	100	0	0	34	37	29
13	35	40	25	6	62	32	34	50	16	66	0	34	36	38	26

P: Participant   R: Architect Role / Response   Y.: Yes   N.: No   M.: Maybe
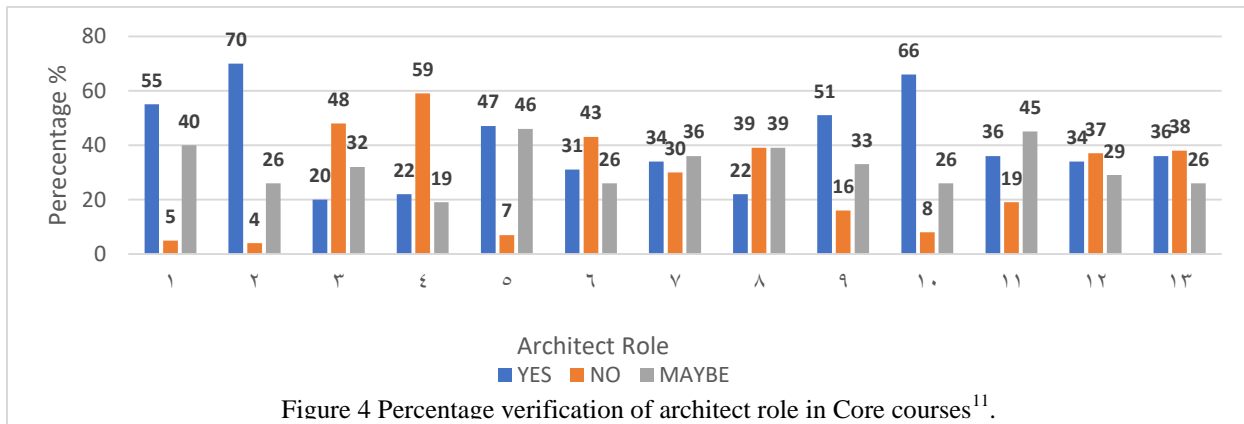

Figure 4 Percentage verification of architect role in Core courses[11].

8. Compatibility between Competencies and Architect role:

Referring to the final results of the first questionnaire on the competencies of architectural education with the academic Courses, we find that the average rate of answering yes for all competencies is 35%, and the average response rate may be for all competencies is 44%, and the average answer rate of no for all competencies is 21% (taple4).

Referring to the final results of the second questionnaire related to the role of the architect and study materials, we find that the average answer rate of Yes to all points related to the role of the architect is 41%, and the average answer rate, May be, for all points related to the role of the architect is 32%, and the average answer rate of No for all points related to the role of the architect is 27% (table4).

Table4: Result of Questionnaire: (Between Core courses and Competencies and Architect Role) (The author).

Response	Yes	No	Maybe
Core courses and Competencies.	35%	21%	44%
Core courses and Architect role.	41%	27%	32%

In Table 4, the average response rate of No, which indicates lack of verification is lower for competencies and for the role of the architect, while the average response rate of Yes differed as the average response rate of Yes for competencies was less than the average response rate Maybe, on the contrary, the average response rate of Yes for the role of the architect was higher From the average answer rate Maybe

Therefore, we can say that if quality standards and competencies are achieved in the academic Core courses for students of architecture, this helps in the possibility of the architect playing his full role in professional practice.

In the last part of the research, we can determine the extent of the compatibility between learning competencies, represent part of architectural education, and the role of the architect, represents the practice of the profession, through the following proposed matrix (Table5) - The average percentage of verification and non-verification of learning competencies (C) (section 7.1) was taken as a fixed element to understand the relationship with architect role (R) (section 7.2). The learning competencies were represented horizontally, and the role of the architect was represented vertically.

Table5: Compatibility between Competences of Architectural Education and Architect Role for Professional Practice in Egypt (The author).

Compatibility between Competences and Architect Role		Competences of Architectural Education		
		Average Rate		
		Y. 35%	N. 21%	M. 44%
Architect Role (Professional Paractic) — Average Rate	R1	55%	5%	40%
	R2	70%	4%	26%
	R3	20%	48%	32%
	R4	22%	59%	19%
	R5	47%	7%	46%
	R6	31%	43%	26%
	R7	34%	30%	36%
	R8	22%	39%	39%
	R9	51%	16%	33%
	R10	66%	8%	26%
	R11	36%	19%	45%
	R12	34%	37%	29%
	R13	36%	38%	26%

*Red cell indicate to: Max. Average Rate.

9. The results:

9.1. Core courses and Competencies:

The first questionnaire dealt with the relationship between the Core courses and the five competencies. A group of architecture students and faculty members participated

- Results of students differ from the results of faculty members in the percentage of competencies.
- There is an agreement between the 3 competencies with the Courses, also the results differ in terms of the percentage of the courses achieving quality competencies.
- There are shortcomings in the fourth competency with core courses that belong to transforming design concepts into buildings and integrating plans into overall planning within the constraints delivery.

9.2. Core courses and Architect Role:

The second questionnaire dealt with the relationship between the Core courses and the role of the architect in Egypt, A group of architecture students, faculty members and architects participated and a group of members of the Engineers Syndicate.
- Results are compatible in terms of the extent to which the core courses agree with the architect role

like R.1, R.2, R.5, R.9, and R.10 were achieved.
- In other points, it was not achieved, as in R.3, R.4, R.6, R.8, R.12 and R.13.
- Another points, it may be achieved, as in R.7 and R.11.

9.3. Competencies and Architect role:

By table 5 and making the average percentage of learning competencies as a fixed element which refers to the percentage of achieving learning competencies 35%, not achieving 21%, and to some extent 44%, we find the following results:
- The architect role (R.1, R.2, R.5, R.9, and R.10) got a higher verification rate, which related to architectural design, shop drawings, planning and study of the built environment and interior design.
- The architect role (R.3, R.4, R.6, R.8, R.12 and R.13) got a higher rate of non- verification, which related to contract execution, supervision of implementation and preparation of tender documents, land use plans, traffic design, construction materials and technical reports.
- The architect role (R.7, R.8 and R.11) got a higher rate of may be- verification, which related to urban planning and traffic acoustics and lighting in public buildings.
- By adding the average verification rates Yes and Maybe together for the learning competencies, we find that they reach 79%, and the number of points obtained for the highest percentage of the architect role is 8 out of 13, the number of points obtained for the lowest percentage of the architect role is 6 out of 13.
-Architect role number 8 which related to traffic and roads design has obtained the same percentage in No and Maybe.
- When competencies are achieved in the academic Core courses for students of architecture, this helps in the possibility of the architect playing his full role in professional practice.

10. Recommendations:

- Encouraging architecture departments within Egyptian universities to make international partnerships with relevant educational institutions, in cooperation with the Egyptian Ministry of Education and Scientific Research.
- Increasing communication between the departments of architecture and the Syndicate of Engineers to define the role of the architect through conducting educational courses and seminars.
- Review of the activation of the competencies of architectural education with basic architecture core courses by the departments of architecture and the Quality Assurance Authority.

- Activating and encouraging a culture of quality within the departments of architecture through conducting scientific competitions that standardize learning competencies in courses in Egyptian universities.
-The competencies can be achieved with improvement plans, and it is possible to increase the percentage of verification in academic courses.
- Focusing on the courses that use the competencies with the lowest percentage, and motivating them in innovative ways that make the courses achieve the competencies required of it.
-Core courses need more improvement plans, which help in raising awareness among the participants to develop plans in some courses to meet the requirements of the labor market through the role of the architect and his practice of the profession.
- Conducting future studies and research dealing with the relationship between each of the core courses in architectural education and learning competencies in detail.
-Conducting future studies and research dealing with the relationship between each of the core courses in architectural education and the role of the architect in detail.

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