Importance of communication skills in architectural education to Raise the efficiency of professional practice of graduates

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Keywords	Abstract
architectural education, communication skills, professional practice.	*communication skills are among the most essential skills that architecture graduates need, which help them to engage in the labor market. Communication skills are in visual and verbal formats. After graduation and practicing the profession, many students suffer from a weakness in communication skills for many reasons, despite the emphasis on their importance by the organizing body responsible for practicing the profession such as (NAAB, RIBA, ABET ... etc.).* *This study follows the descriptive and analytical approach, whereby the measurement mechanism represented in the questionnaire is used to find out the graduates' proficiency degree in aspects of communication skills, in addition to knowing ways to develop the outputs of architectural education about these skills. The study sample included newly graduated engineers and faculty members who are directly related to the outputs of architectural education and its impact on professional practice and labor market requirements.* *The research came out with conclusions, that the graduates have efficiency in some of the aspects of communication skills and lack in other aspects. Based on the conclusions, the research came out with recommendations to cover the lack of knowledge in some aspects of communication skills in architectural education.*

1. Introduction

Architecture is a profession in which the student needs many skills in order to be able to practice this profession, including communication skills, which means the ability of the architect to communicate visually and verbally with all parties related to the stages of the project design and implementation process, such as clients, specialists, users, craftsmen, etc. (Amanda, 2011).

Communication skills are in visual and verbal formats, as visual design skills are represented mostly through architectural and executive drawings, preparation of reports, illustrations, etc., and the architect must be proficient in them and have the expressive ability to communicate his ideas correctly in addition to what is explained verbally, which is the second part of communication skills Which complements and supports the first part of it, and helps the architect explain his ideas to clients, users, and engineers from other disciplines and crafts (Natasha, 2017, p13-15. Waclaw, 2020, p61-62).

Many students, after graduating and practicing the profession, suffer from weakness in some or most aspects of communication skills. This is due to many reasons, including that communication skills are not special courses. Rather,

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these skills are taught implicitly through practical architectural education courses. his is noticed through the research and survey of the architectural programs of the most important Iraqi universities, although most architectural programs submit to a set of determinants set by the organizing bodies for the practice of the profession, such as (RIBA, ABET, NAAB.... etc.), all of which have agreed that the academic program must include clear courses that develop communication skills as a prerequisite for obtaining a certificate of recognition from them. (Suchismita, 2015, p: 584) (Ahmed, 2019, p: 871) (Kazem, 2017, p. 96) (Abdeen, 2007, p. 9) (Al-Yousef, 2014, p. 167) (Baalusha, 2014, p. 86) (Mohammed, 2015, p. 3) (Badawi, 2009, p. 71) (Esra, 2019, p:148) .

Therefore, this study examines the extent of graduates' competence in possessing communication skills when practicing the profession and the extent of the efficiency of these local architectural programs in achieving the determinants of the authorities regulating the practice of the profession. Where this study follows a descriptive and analytical approach in which questionnaires are used to find out the extent to which graduates are efficient in their possession of communication skills in Iraqi universities. Thus, the research problem and research objectives were generated and its methodology was determined.

1.1 Research problem

There is a lack of knowledge in the extent of the competence of graduates of architecture departments in Iraqi universities with regard to their possession of communication skills.

1.2 Research purpose

The research aims to:
* Knowing the forms of communication skills and their aspects in professional practice.
* Measuring the efficiency of Iraqi university graduates with regard to their communication skills.
* Ways of developing the outputs of architectural education in terms of communication skills.

1.3 Research methodology

The research follows analytical approaches, including:
* Building a theoretical framework that includes the main forms of communication and their aspects by reviewing previous studies and global determinants.
* Determine the study sample.
* Determine the measurement tool and its mechanism.
* Applying the measurement tool to the selected practical study samples
* Analysis of results and conclusions.

2. Theoretical framework

The following is a review of the importance of these skills and their formulas and aspects in Previous studies to get the Theoretical framework vocabulary:

2.1 Previous studies:
2.1.1 David، Simon(2000)

This study dealt with the importance of communication skills and showed how architects are not good listeners and that the gap between the engineer and the client is constantly increasing and requires radical solutions. When conducting interviews with clients, they indicated that architects have ideas that may be great, but they are not good at explaining them.

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And the legal authorities, and the researcher believes that focusing on the design studio and keeping the student for long hours leads to a loss of communication skills with others. Although the design studio includes many forms of visual, verbal, and tactile representation, and sometimes students work as groups, there is a reduction in the systematic development or evaluation of communication skills in engineering.

Finally, in order for the student to learn the ideal professional practice, the student must deal with a real problem, a real reality, with a real customer, go to the community and talk to the users instead of deducing the needs of the users in a drawing board, such as learning how children experience their school environment during their visit to the school.

2.1.2 Amanda, Joseph (2011)

The study dealt with whether communication skills are part of the NAAB program and how important communication skills are for architects. (Writing skills to prepare a business proposal, present prizes, present projects, communicate via e-mail, and promote their products through social media, public speaking skills to present presentations and explain their projects, ideas, and goals to clients, users, contractors, or arbitration committees, marketing, and public relations skills are necessary to market their products winning business and persuading customers). The researcher surveyed architects, deans of faculties, and directors of 49 architecture programs to survey and analyze architects' views on the importance of communication skills in professional practice.

The results indicated that academics differed in their viewpoints regarding the importance of communication skills in the education of architecture.

The results of the survey showed that 100% of the participants agree on the importance of communication courses, and the optional comments emphasized the importance of communication skills for architects, as architecture as a practice is a communication process from beginning to end, and the ability to speak is just as important as the ability to design. Therefore, communication with Customers before, after, and during the provision of services is critical.

2.1.3 Natasha (2017)

This study aims to investigate the changing nature of architectural education and the importance of live projects in developing the communication skills of students in architecture schools. This study hypothesizes that live projects provide students with skills, tools and relationships additional to those acquired during a 'traditional' design project, which will help prepare them for practice. The researcher conducted three case studies, the first is a two-week studio project in Oxford with a real client, the second is a field trip to India and working with communities affected by the Asian tsunami in 2004, and the third is a pavilion project that was built as a competition by the university.

The researcher concluded, after working with real clients, local communities, companies, and the media, that design studios lack practical experience, communication skills, cooperation, and commercial experience, and design studios do not give students an opportunity to share their ideas and develop them with each other unless they work within a group. outside the educational institution and therefore lacks communication skills such as listening, negotiation, explanation and persuasion.

2.1.4 Waclaw (2020)

In this study, the researcher believes that the architect does not have the ability to communicate with the professionals at the construction site while supervising the work and the lack of professional terminology. Speech, persuasion, knowledge of professional terminology and technical knowledge.

The aim of this paper is to analyze the methods of visual communication that are taught in architectural schools based on the curriculum of the Faculty of Architecture at the Krakow University of Technology in Poland in order to improve the level of graphics among students.

The research emphasizes the importance of the practical aspect, and here it does not mean design studios, but rather the construction site. It stresses the need for students to participate in the construction site to learn communication skills with other disciplines, and that this is mandatory in the curricula. The research also emphasized the need for engineers to have free drawing skills to use them quickly on the site. Building to explain ideas because the use of computer graphics is difficult on site and takes time.

After examining the previous studies, it was found that there are many communication skills needed by the architect in the labor market, whether communication skills in the design stage or communication skills in the implementation stage. There are also two types of communication: visual communication and verbal communication as shown in Table 1.

Table 1. communication skills emphasized by previous studies

vocabulary	study(1)	Study (2)	Study (3)	Study (4)
Communication with clients and users	*	*	*	*
listening	*		*	*
negotiation	*		*	*
Communicate with engineers from other disciplines	*	*		*
Explain ideas to the architectural design team		*	*	
Defending their ideas and designs		*		
Speaking in front of an audience to make presentations	*	*		
Outline diagrams				*
Architectural presentation				*
Freehand drawing skills				*
Communication with contractors	*	*		
Communication with professionals	*	*		*
Marketing		*		
Summary preparation	*			
reports writing		*		
Preparing a work proposal		*		
Communication with legal authorities	*			

2.2 Theoretical framework vocabulary

Through the foregoing, a theoretical framework was formed that includes the vocabulary or formulas of communication skills and their most important aspects or the variables they contain, as shown in Table 2.

Table 2. shows the vocabulary of the theoretical framework

Main vocabulary	Sub- vocabulary (Forms of communication)	Variables (aspects of communication skills)
Communication at the design stage	Verbal communication	Communication with customers and users
		Communicate with engineers from other disciplines
		Working with an architectural team
		Dialogue, discussion and exchange of ideas
		Criticize team members in a professional manner
		Public speaking for presentations
		Defending their ideas and designs
		Listening and negotiating
	visual communication	The engineering plans

Communication at the executive stage	Verbal communication	Communication with site engineers
		Communication with contractors
		Communication with professionals
		Marketing
	visual communication	Executive charts
		Summary preparation
		reports writing
		Communication with legal authorities

3. The application framework
3.1 Selection of samples

1. The teaching staff: They are the most important part in the educational process and decision-making.

2. Recent graduates: They were chosen because they have practiced the profession with the knowledge they have and are able to identify what they lack in terms of knowledge of the labor market.

3.2 Determine the measuring tool

The researcher adopted the closed-ended questionnaire format on a five-point Likert scale for most of the questions, and a few open-ended questions were made to survey and analyze the opinions of architects and teaching staff about the importance of communication skills in professional practice.

The questions of the questionnaire were formulated depending on the forms of communication and their aspects that were formed in the theoretical framework, and each of them was coded, whether for teachers or graduates.

The questionnaires were distributed to each of the graduates practicing the profession, and faculty members, each according to his questions. Where the forms were distributed in several Iraqi governorates electronically, and the forms received for the teachers were 42 forms and for graduates 120 forms, and it was processed statistically to avoid discrepancies in the preparation of the forms.

3.3 Application and results analysis

The theoretical framework was applied to the proposed samples, and then the results derived from this application were analyzed as follows:

3.3.1 The statistical description of the results of the questionnaire for the faculty members

After analyzing and tabulating the results (Table 3.), the results showed that 72% of the teachers believe that the courses do not enable students to work with a team from different disciplines due to the lack of joint projects between them, And 73% of them indicated that the courses do not enable students to communicate effectively with professionals on construction sites, and this is due to their lack of extensive exposure to real projects. And 98% of the faculty members indicated that there is a weakness among students in making executive drawings.

On the other hand, the results showed that 98% of the faculty members believe that the courses develop students' skills in defending their ideas and designs, and 95% of them believe that the courses enable them to work with an architectural team and develop their dialogue and discussion skills Also, 93% of them indicated that the courses develop students' ability to speak in front of the public to present projects and information for architectural competitions and to groups of clients and users, and 88% of the teachers

indicated that the courses enable students to criticize works professionally and enable them to listen and negotiate with others, And 86% of them indicated that the courses develop students' conversation skills and persuade customers, while 83% of them believe that the courses enable students to write reports and enable them to manage public relations and marketing for their products.

variable	Arithm-etic mean	standard deviation	the coefficient of variation	Response measurement											agreement ratios	response intensity
				I strongly agree		I reasonably agree		I slightly agree		neutral		don't agree			
				No.	%	No.	%	No.	%	No.	%	No.	%		
X16	3.357	1.265	37.690	7	16.7	15	35.7	13	31	0	0	7	16.6	83.4	67.142
X17	3.928	0.921	23.446	10	23.8	23	54.8	7	16.7	0	0	2	4.7	95.3	78.572
X18	3.095	1.478	47.766	4	9.5	1	2.3	7	16.6	0	0	30	71.4	28.4	61.904
X19	4.000	1.104	27.608	16	38.1	16	38.1	7	16.7	0	0	3	7.1	92.9	80.000
X20	3.785	1.297	34.285	13	31	19	45.2	4	9.5	0	0	6	14.3	85.7	75.714
X21	4.238	0.849	20.054	18	42.9	18	42.9	5	11.9	0	0	1	2.3	97.7	84.762
X22	3.357	1.284	38.261	8	19	13	31	14	33.3	0	0	7	16.7	83.3	67.142
X23	3.571	1.192	33.384	9	21.4	16	38.1	12	28.6	0	0	5	11.9	88.1	71.428
X24	4.023	1.070	26.601	15	35.8	19	45.2	5	11.9	0	0	3	7.1	92.9	80.476
X25	3.666	1.202	32.808	10	23.8	18	42.9	9	21.4	0	0	5	11.9	88.1	73.334
X26	2.857	1.317	46.105	1	2.3	3	7.1	7	16.6	0	0	31	73.8	26.2	57.142
X5	4.547	0.832	18.302	29	69	9	21.5	3	7.1	0	0	1	2.4	97.6	90.952
General Average	3.70	1.15	32.19		28.77		38.10		20.43		0		12.68	87.31	74.04

Table 3. The general average, the frequency distributions, the arithmetic mean, the standard deviations, the coefficient of variation, the response intensity and agreement ratios

3.3.2 Statistical description of the results of the questionnaire for graduates practicing the profession

After analyzing and scheduling the results (Table 4.) below, it turns out that 97% of the graduates have weaknesses in legal matters and communication with legal authorities, and 95% of them have weaknesses in making executive plans, and 90% of them indicate that they suffer from weaknesses in administrative matters. And 71% of them believe that they have weakness in communication skills with a team of various disciplines, and 76% of them believe that they have weakness in communicating with professionals on site.

On the other hand, 95% of the graduates believe that the courses develop in them the skills of defending their ideas and designs, and that 91-93% of the graduates believe that the courses developed their skills of working with an architectural team, dialogue and discussion skills, public speaking skills, listening and negotiation skills, and between 81% -83% of the graduates believe that the courses have developed their skills of persuasion, public relations and criticism in a professional manner, while 74% of them believe that the courses have developed their report writing skills.

variable I reasonably agree No.	Arithm-etic mean I slightly agree %	standard deviation neutral No.	the coefficient of variation don't agree %	Response measurement											agreement ratios	response intensity
				I strongly agree		I reasonably agree		I slightly agree		neutral		don't agree			
				%	No.	%	No.	%	%	No.	%	No.	%		

Table 4. The general average, the frequency distributions, the arithmetic mean, the standard deviations, the coefficient of variation, the response intensity and agreement ratios

|														
y15	3.142	1.424	45.309	6	14.3	16	38.1	9	21.4	0	0	11	26.2	73.8	62.858
y16	3.857	0.951	24.676	9	21.4	23	54.8	7	16.7	1	2.4	2	4.7	92.9	77.142
y17	2.761	1.245	45.101	2	4.8	1	2.38	9	21.4	3	7.1	27	64.3	28.6	55.238
y18	3.904	0.983	25.174	13	31	16	38.1	10	23.7	2	4.8	1	2.4	92.8	78.096
y19	3.500	1.254	35.836	6	14.3	23	54.8	6	14.2	0	0	7	16.7	83.3	70.000
y20	4.071	0.866	21.283	15	35.7	17	40.5	8	19	2	4.8	0	0	95.2	81.428
y21	3.119	1.193	38.266	3	7.1	15	35.8	16	38.1	0	0	8	19	81	62.380
y22	3.500	1.254	35.836	8	19	18	42.9	9	21.4	1	2.4	6	14.3	83.3	70.000
y23	3.881	0.889	22.906	9	21.4	23	54.7	7	16.7	2	4.8	1	2.4	92.8	77.620
y24	3.714	1.088	29.303	8	19	22	52.5	8	19	0	0	4	9.5	90.5	74.286
y25	2.857	1.335	46.748	2	4.7	2	4.7	6	14.3	0	0	32	76.2	23.7	57.142
y9	4.738	0.734	15.501	35	83.3	5	11.9	1	2.4	0	0	1	2.4	97.6	94.762
y10	4.309	1.136	26.376	27	64.2	7	16.7	4	9.5	2	4.8	2	4.8	90.4	86.190
y12	4.404	0.9892	22.457	26	61.9	11	26.2	3	7.1	0	0	2	4.8	95.2	88.096
General Average	3.696	1.095	31.055		29.06		36.75		20.7		3.7		9.7	86.55	73.9
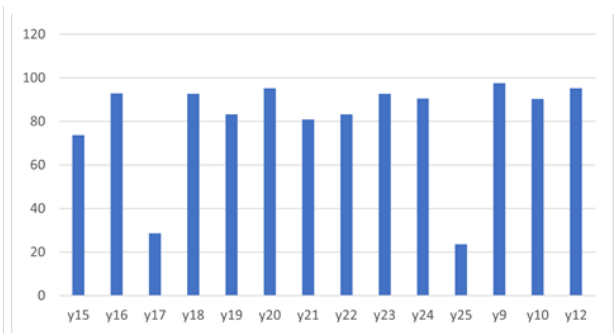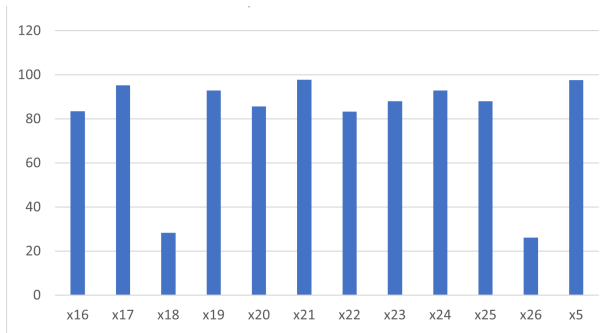
Figure 1. The percentages of agreement for the variables of the teachers. Figure 2. The percentages of agreement for the variables of graduates

3.3.3 Comparison of the results of the questionnaire for teachers and graduates practicing the profession

By analyzing the results for teachers and graduates, it is clear that there is an agreement that architecture graduates do not have communication skills with other engineering disciplines (through the form of visual and verbal communication) because there are no joint projects between them. The teachers and graduates also agreed that they do not have the skills to communicate with professionals in the workplace (both forms of visual and verbal communication), and this is due to the lack of programs for regular visits or to involve them in realistic projects. On the other hand, the teachers and graduates also agreed that there is a weakness in the executive drawings (format of visual communication). The graduates also emphasized that they have weaknesses in visual communication skills related to legal matters and ways of communicating with the legal and administrative authorities.

As for the rest of the communication skills in both their visual and verbal forms, they emphasized that the graduates have these skills, even in varying proportions, and therefore these skills are implicitly present in practical and theoretical courses, but they need continuous improvement to raise the efficiency of these skills further.

4. Conclusions and recommendations
4.1 Conclusions

By analyzing and comparing the results, the research concluded The following conclusions:

1. Graduates cannot communicate effectively with professionals on-site while carrying out supervision activities as a result of the lack of continuous practical training on-site, rather it is limited to one-month training only which is not sufficient.

2. Graduates cannot communicate with the rest of the disciplines in the labor market, such as: (civil, mechanics, electricity.... etc.) due to the lack of joint projects between the different departments and specializations.

3. Graduates suffer from poor communication through executive plans, so there is a need to increase attention to the practical side.

4. The graduates do not know legal matters and how to communicate with government authorities, and this needs to be emphasized in the courses related to aspects of practicing the profession.

5. Most graduates suffer from poor knowledge of administrative matters and how to manage projects, such as preparing a summary, submitting a proposal, and others, as a result of the lack of courses that develop such skills and not including them in practical or theoretical subjects.

6. Most of the graduates have report writing skills, which the student acquires by writing reports on design projects.

7. Graduates have the skills to work with an architectural team, thanks to following the approach of working as a group within some parts of the architectural design course. They also can professionally criticize works, and this is a result of urging courses, especially architectural design, to develop these skills by criticizing the work of their colleagues.

8. The graduates have the skills of dialogue, discussion, and exchange of ideas, as well as the skills of public speaking to present presentations and defend their ideas and designs. This is what the curricula in architectural education, especially architectural design.

9. Graduates can convince clients despite not engaging in real projects and dealing with real clients and real requirements during the years of study.

10. The graduates have knowledge in the field of public relations and marketing for their products, although there are no special courses in project management and marketing.

11. The graduates can listen and negotiate, even though the student did not deal with a real client during his studies, and there are no special courses for learning negotiation methods, but rather he is implicitly trained in the courses.

4.2 Recommendations

1. The need to place greater emphasis on communication skills and increase focus on them in practical materials, or add them as a special course that develops aspects of communication skills, as they are among the basic requirements in the labor market.

2. The need for students to engage in the labor market during their studies by including them in realistic projects to learn communication skills with clients, users, and professionals.

3. Emphasizing and focusing on the subject of executive graphics and strengthening it with modern curricula and

field visits.

4. Set up workshops for students, especially students in the fifth stage, with the administrative and legal authorities responsible for the projects that are implemented to increase their understanding and awareness of the administrative and legal matters related to them and to prepare them for the labor market properly.

5. Holding joint workshops for students with the rest of the engineering departments through the work of joint projects to exchange ideas and raise the efficiency of students in communication with other engineering disciplines.

Conflict of Interest

Authors declare that there is no conflict of interest.

5. References

Al-Yousef, Hamid, Salman, (2014), "Orientation towards quality and reliability in architectural education, the Department of Architecture at the University of Technology as a model", Al-Qadisiyah Journal of Engineering Sciences, Department of Architecture, University of Technology, Baghdad. (Arabic)

Mohamed, Sheeta, Makram, (2015), "Continuous Development of Professional Skills for Architects in Egypt," Mansoura Engineering Journal, Department of Architecture, Future University, Egypt. (Arabic)

Balousha, Al-Mansi, (2014), "The Impact of Developing University Architectural Education on Providing Job Opportunities for Graduates, Case Study - Department of Architecture at the Islamic University of Gaza," Master Thesis, Department of Architectural Engineering, Islamic University, Gaza. (Arabic)

Abdeen, (2007), "Development of Architectural Education for Undergraduate Level", Master Thesis, Faculty of Architecture, Damascus University, Syria. (Arabic)

Badawy, Ashour, Ibrahim, (2009), "The Relationship of University Architectural Education to the Architectural Profession Practice in Egypt," Master Thesis, Faculty of Engineering, Department of Architecture, Ain Al-Shams University, Egypt. (Arabic)

The official website of the University of Mosul http://uomosul.edu.iq/pages/ar/engineering/55301 . (Arabic)

The official website of the University of Baghdad https://coeng.uobaghdad.edu.iq/?page_id=15004 . (Arabic)

The official website of the University of Technology https://ae.uotechnology.edu.iq/images/study%20plan/study%20plan%202012-2017.pdf (Arabic)

Kazem, Ali, Hamid, (2017), "Developing the quality of architectural learning outcomes in Iraq", Iraqi Journal of Architectural Engineering, Department of Architecture, University of Technology, Baghdad.(Arabic)

 Esra, B. Kevser, K. (2019). "AN ASSESSMENT OF PROFESSIONAL PRACTICE TRAINING IN UNDERGRADUATE ARCHITECTURAL EDUCATION", The Turkish Online Journal of Design, p 145 -158, İstanbul Kültür University, Turkey.

Amanda, W. Joseph,B .(2011). "MIXED MESSAGES: ASSESSING COMMUNICATION IN ARCHITECTURAL EDUCATION AND PRACTICE". Master Thesis, Department of Public Relations & Advertising, College of Communication, Rowan University, USA.

Natasha,L. (2017). "The Changing Nature of Architectural Education: Do Live Projects prepare students for the realities of architectural practice?". Master Thesis, Oxford Brookes University,UK.

Wacław,C. (2020). "Architectural education to improve technical detailing in professional practice". Global Journal of Engineering Education, Cracow University of Technology, Poland.

Suchismita,B . Shivashish,B .(2015). "Comparative analysis of architectural education standards across the world". University of Oklahoma,OK, Jadavpur University ,Kolkata,India.

David N , Simon P (2000) Changing Architectural Education, London , USA.

Ahmed,A .(2019). "International accreditation of architecture programs promoting competitiveness in professional practice". Alexandria Engineering Journal, p .877-883, Department of Architecture, College of Architecture and Design, Jordan University of Science and Technology, Jordan, Department of Architectural Engineering, Faculty of Engineering, Alexandria University, Egypt.

Saba,H. Minoo,Sh. (2020). "THE GAP BETWEEN ARCHITECTURE EDUCATION AND ARCHITECTURAL PROFESSION IN IRAN". Journal of Architectural Research and Education (JARE), p.121-133, Department of Architecture, Faculty of Architecture and Urban Design, Art University of Isfahan, Isfahan, Iran.

Official Website Of ABET Organization https://www.abet.org/ .

Library ,catalogue of RIBA British Architectural www.architecture.