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Methods to Improve the Effectiveness and Quality of Teaching the Disciplines of the Architectural and Artistic Profile (Experience of Libya)

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Abstract: The article analyses the methods of teaching the disciplines of the architectural and artistic profile in Libyan higher educational institutions. The research objectives address the close-open survey that outlines the methods currently used in the educational process, selection of the most efficient teaching strategies, and development of the recommendations for the teachers of architectural and artistic disciplines to use combined teaching methodology. For the study, we analyzed 30 recent scientific papers devoted to the problems of the organization of architectural education in Libyan higher educational institutions and abroad including China, Spain, Turkey, Egypt, India, Pakistan, Poland, and UK. We applied a number of research methods including interdisciplinary literature review, generalization of research results on the existing requirements to architectural education and the peculiarities of its organization. Also, we used teachers survey with close-open ended questions to collect objective data on teaching methodology. The survey was conducted among 187 faculty members with different teaching experience in different Libyan higher educational institutions that train future architects during one academic year. All of them participated in the survey voluntarily and answered the questions objectively and openly to further elaborate the appropriate recommendations for the enhancement of educational process. The findings demonstrate that effective and qualitative educational process requires combination of different teaching strategies and methods. The use of

combined methodology depends on many factors such as students' needs, learning objectives, peculiarities of educational environment, employer's requirements, and pedagogical mastery of teachers. The research proves that the effective teaching methods are productive, informative, satisfying, interactive, innovative; they must consider interdisciplinary links and contribute to improvement of integrated professional competency as well as soft skills. The research resulted in elaboration of recommendations for the teachers to apply combined methodology in teaching the disciplines of the architectural and artistic profile

Keywords: disciplines of architectural and artistic profile, teaching methods, educational process, combined methodology, innovation.

Introduction

Globalization and integration process throughout the world, social and economic transformations, cultural developments bring significant changes in all spheres, higher education in particular. Under contemporary conditions, society modernization should fully meet the requirements of businesses and industrial sector, including architecture, urban development and arts, since the construction industry is one of the major economic sectors and actually shapes national development.

As an art to design and construct buildings, architecture creates well-organized environment for human life. Today's customer needs creative projects, fresh architectural and planning as well as artistic and aesthetic solutions. New construction objects must differ from the ones, architects and artist designed earlier. These objects must be built according to modern construction and exploitation requirements, involve innovative technologies and meet the increasing artistic and aesthetic demands of customers.

In the Libyan context, architects, urban planners and environmental designers must pay attention to development of environmental, social and economic dimensions and, simultaneously, implementation of contemporary designs in construction projects of multiple utilization (Sasi, 2021; Tahir et al., 2022). It depends, first of all, on the harsh climate of Arab countries and new construction projects must consider the hot zone conditions and provide good indoor environment. Also, it is preferable to preserve building features of Islamic architecture and reflect Muslim identity (Alatrash & Grdalli, 2018). Stein et al. (2020) note the importance of work of architectural and artistic profile for post-conflict reconstruction in war-torn cities.

As energy efficiency of buildings have become a significant aspect within the urban planning, architects must offer human society the philosophy for sustainable urbanism and innovative efficient design of construction objects to decrease energy consumption to meet contemporary technological capabilities and designing (Bakoosh et al., 2021; Sasi, 2021; Tahir et al., 2022). In addition, new conditions of urban planning demand to choose green materials and technologies including the use of local materials to add a healthy atmosphere to buildings (Tahir et al., 2022).

Besides, the great challenge for modern Libyan architects, urban planners and environmental designers to understand human diversity and create urban space that will correspond with the needs of all segments in the society. They are to provide practical approaches to construction projects and to ensure comfortable and supportive environment for all the people on an equal basis (Al Sharif, 2022).

Architect is a special profession because architecture itself is at the same time philosophy, art, science, engineering, technology, mathematics, sociology and politics, creativity and sustainable development. Modern professional standards orient architects towards research, design, engineering, and management solutions. In addition, design and construction specialists should possess communication skills, digital competency, and perform intermediately functions between all interested parties including contractors, customers, and local communities.

Hence, these conditions determine high quality of education of architects. But training of future specialists in this sphere has a number of characteristic features, imposing requirements and restrictions on organization of educational process at the educational institution.

To enhance the effectiveness of teaching the disciplines of the architectural and artistic profile in Libyan institutions, it is necessary to combine theory and practice in construction planning and design, to consider historical and modern architectural heritage to students, and to apply innovative teaching strategies and methods extensively.

Research Problem

Today architectural education requires special attention and needs continuous development because of the changing nature of architectural practice. Moreover, educators should consider the fact that architecture and art differ from other professions because they usually involve two dimensions and changes within the local, technological, and cultural paradigms (Ghonim & Eweda, 2019).

According to Zaed and Chen (2021), the Libyan higher education sector suffers from a number of difficulties like the absence of proper planning and the use of ineffective teaching strategies. The result is a lack of qualified professionals in the Libyan construction and urban development industries, the use of advanced technology in particular.

Recently, this problem has gained more attention, and Libya's education system must be rapidly modernized considering the technological progress of international advanced architectural and artistic programmes. And Libya, as a developing country, must find more sophisticated educational solutions to enhance the effectiveness of education process in the field of architecture and other related specialities.

Thus, the problem of selection of effective teaching strategies and methods within the architectural education is especially important since it may contribute to improvement of training of future architects and urban planners and, consequently, provide national economy of Libya with professional and creative specialists who will improve economic growth, restore damaged buildings and architectural heritage, and develop infrastructure sector.

Research Focus

In Libyan universities the architectural education was introduced in the second part of the XXth century and remained unchanged for around 20 years. Some modifications started in the early 1980s. At present the Libyan educational institutions offer two types of bachelor degrees: Architectural and Urban Design and Planning (Zaed & Chen, 2021).

According to the National Libyan Public Education Reform: Entire Transformative Strategies, 2020–2026 (Elabbar, 2021), the Libyan Ministry of Education has put a plan of reforming the Libyan education system considering science, technology, and innovation efforts. The document emphasizes on the necessity of immediate improvement of education, including construction specialities.

Today the market demands a high level of professional competency from specialists working in construction, engineering, and urban planning. Obviously, professional education in architecture should adapt to the needs of social and economic progress, existing institutional facilities, and educational spending (Zaed & Chen, 2021; Zhou, 2020). And, moreover, education system should provide graduates with the skills and knowledge according to the employers' expectations (Pons-Valladares et al., 2021). Also, advances in technology and digital transformations lead to substantial changes in the curriculum of architectural and artistic disciplines and approaches to their teaching (Bayhan & Karaca, 2020; Soliman et al., 2019).

Findings show that architectural education is the focus of research of many pedagogues who study organization of educational process in programmes related to architecture and urban development and teaching strategies used to enhance the efficiency of training. Currently, scholars differentiate some approaches to organization of architectural education.

Findings show that most educational institutions in many countries apply traditional approach to teaching the disciplines of the architectural and artistic profile that involves classroom teaching and combination of theory and practice (Bayhan & Karaca, 2020; Pons-Valladares et al., 2021; Shareef & Farivarsadri, 2020; Zhou, 2020). Usually students attend lectures, do spatial composition models, and prepare scientific research to study specific topic in details (Zhou, 2020).

Other approaches include school-enterprise cooperation, digital training, and international cooperation (Pons-Valladares et al., 2021; Ruggiero, 2021; Zaed et al., 2021; Zhou, 2020). School-enterprise cooperation can be implemented in conventional activities like attending construction sites and joining the professional architects and participation in real projects. Also, some diversified forms are applied: establishing a production base or introduction of the actual enterprise project as a graduation project (Zhou, 2020). Digital training helps to cultivate designing skills since they create fabrication laboratories, make advanced tools and software available, use virtual reality (Pons-Valladares et al., 2021; Ruggiero, 2021; Zaed & Chen, 2021). International approach suggests implementing field trips, face-to-face students' exchanges, study visits to foreign educational institutions to gain new experience and inspiration (Zhou, 2020).

Regarding the methodology, Shareef and Farivarsadri (2020) claim that in architectural education various teaching strategies coexist and complement each other. As regular courses aim to cover students' professional competences to enhance readiness to practical activity and gaining important working skills (Pons-Valladares et al., 2021). This demands the use of different teaching strategies in the classroom and during self-study, active learning activities, student-centered learning, and cooperative technologies in particular (Bayhan & Karaca, 2020; Pons-Valladares et al., 2021; Shareef & Farivarsadri, 2020; Zaed & Chen, 2021).

The findings show that the following teaching strategies are used: problem-solving learning (Bayhan & Karaca, 2020), interactive lectures, Delphi method, expert seminars and focus groups, team-based learning, case-based learning exercises, storytelling, role play or work activity simulation (Pons-Valladares et al., 2021), project-based learning or class presentations, peer learning, brainstorming, class discussion or dialogues, collaboration and mutual projects with instructors and colleagues, game-based learning including unplanned, or game-like quizzes and surveys (Shaqour, 2021; Shareef & Farivarsadri, 2020; Zaed & Chen, 2021), conferences, workshops (Allanyazov, 2021).

Today computer technologies provide architects with new opportunities and displace traditional design technologies. As a result, the efficiency and control of new construction objects are introduced

through computational tools which are increasingly considered essential to architectural practices (Soliman et al., 2019). This fact affects architectural education significantly and educational institutions witness an increase in the digital technologies reshaping the overall design studio curriculum structure.

Computer technologies include online learning, including synchronous and asynchronous, e-learning activities, virtual learning activities such as use of virtual laboratories and virtual learning explorative activities, massive open online courses (MOOCs), flipped classroom, interactive simulations, videolectures on real cases, gamification activities (Goray & Patra, 2021; Pons-Valladares et al., 2021; Zaed & Chen, 2021), use of educational computer applications (Soliman et al., 2019). Computer technologies, online learning and virtual learning activities have been implemented more extensively in Libya under the influence of COVID-19 and resulting educational institute closures (Ata & Ganoun, 2020).

According to Lotfabadi and Mousavi (2022), due to the spread of COVID-19 pandemic practice-driven teaching approaches to architectural education shifted to virtual class activities including interactive or video lectures and group discussions, conferences, resumed lessons in virtual space, digital presentations. Also, online questionnaires, teamwork, individual assignments, project-based learning, hybrid learning, use of smart communication programs like WhatsApp, Viber, Skype or Zoom were widely used and they still remain popular (Maatuk et al., 2022; Selim, 2021). These teaching strategies and methods contribute to improvement of students' cognitive abilities, their motivation to be creative, connecting the students to the labor market, and easy introduction of innovative technologies and materials that are currently used in the architectural industry.

Makowska (2019) found that using of drawing and modelling exercises, work in small groups, elements of a play facilitate the transition of theoretical knowledge into key competencies, improvement of thinking flexibility, formation of practical architectural skills, creativity, independent decision-making, freedom in artistic work, and contribute to enhancement of partnership-based relationship between students and teacher.

Zaed and Chen (2021) and Zaed et al. (2021) show that incorporating BIM (Building Information Modelling) knowledge into current architectural and artistic disciplines curricula is very important as it helps to adapt education to real-world situation and prepare future architects to deal with the visual, technological, functional, and aesthetic elements in new construction objects.

Also, BIM-integrated courses help students study in positive atmosphere where cooperation is ingrained in the educational process and facilitates learning activities; it is useful for educators in architectural education and lifecycle oriented construction management (Zaed & Chen, 2019). BIM may be taught with the use of different teaching strategies and methods including instructional methods like lecturing, demonstration, group discussion, case-study, project-based activities, peer learning and assessment exercises as well (Zaed et al., 2021).

In addition, some findings show that onsite visits when students can observe professionals in the workplace, industry-community projects, scientific trips, and interdisciplinary activities contribute to formation of professional competency among future architects (Goray & Patra, 2021; Makowska, 2019; Pons-Valladares et al., 2021) and these strategies may improve the effectiveness of teaching of the disciplines of the architectural and artistic profile.

Also, the great attention is paid towards assessment including formative and summative, intermediate instructor's feedback, online assessment and quizzes, completing design-related

presentation (Goray & Patra, 2021), research or presentation of real-life situation, interview (Allanyazov, 2021). According to Shareef and Farivarsadri (2020) learning diaries are required within the educational process for continuous self-assessment. And at the end of training students are required to prepare a graduation project that is culminating project and demonstrates the peak of the experience and competency (Ghonim & Eweda, 2019).

Architectural education involves a number of courses, such as theoretical, practical, studio, and internship courses. Each of these courses has its own special characteristics and demands the use of different teaching strategies and methods (Ghonim & Eweda, 2019; Shaqour, 2021). Combined teaching strategies increase students' learning outcomes significantly and contribute to formation of professional competency during studying the disciplines of the architectural and artistic profile. Besides, combination of various teaching strategies adequately impacts the organization of interactive lessons and enhance learners' motivation significantly, improve their self-confidence and professional flexibility (Pllana, 2021).

Therefore, the use of appropriate strategies and methods in the process of teaching the disciplines of the architectural and artistic profile may improve the effectiveness and quality of architectural education and contribute to building of professionals for the national economy significantly. The students who are trained with the use of innovative methods and computer technologies will be ready to work in the changing conditions of developing country and will benefit social and economic enhancement.

Research Aim and Research Questions

The aim of the article is to reveal the most effective methods for teaching the disciplines of the architectural and artistic profile in Libyan higher educational institutions.

The article objectives are the following:

- to carry out a close-open survey among the teachers of architectural and artistic disciplines in Libyan higher educational institutions and to outline the methods used;
- to select the most efficient teaching strategies on the basis of teachers survey;
- to develop recommendations for the teachers of architectural and artistic disciplines to use combined teaching methodology.

Research Methodology

General Background

To carry out our research we applied theoretical methods including interdisciplinary literature review and generalization of research results on the existing requirements to architectural education and the peculiarities of its organization. These methods contributed to outline the teaching strategies and methods used in architectural education, in Libyan higher educational institutions in particular, and to outline the appropriate boundaries for their application. Also, a number of empirical methods were used. They involved teachers survey with close-open ended questions to collect objective data on teaching methodology.

Empirical research methods including close-open survey were used to collect quantitative data on the organization of teaching the disciplines of architectural and artistic profile. The use of empirical

methods helped us assess the quantitative data and select the most effective teaching methods that can affect the educational process positively and lead to its enhancement.

Sample / Participants / Group

The survey was conducted during 2022-2023 academic year in different Libyan higher educational institutions that train future architects. Open-close ended questions were sent out through emails to instructors teaching the disciplines of architectural and artistic profile both obligatory and elective courses (such as History of Architecture and Fine Arts, Descriptive Geometry, Freehand-Drawing and Visual Composition, Islamic Architecture, Contemporary Architecture, Domestic Architecture, Architectural Design Studio, Theories of Architecture, Acoustics, Air-conditioning, Building Technology, Environmental Control, Urban Design, Landscape Architecture, Building Restoration, Colour Theory, Architectural Graphics, Sustainable Design, Furniture architecture, Medieval Architecture, Social and Behavioral Factors for Design, Historic Building Preservation, etc.). The survey involved 187 faculty members with different teaching experience. All of them participated in the survey voluntarily and answered the questions objectively and openly to further elaborate the appropriate recommendations for the enhancement of educational process.

Instrument and Procedures

The teachers were questioned through the forms sent out by e-mails to obtain necessary qualitative and quantitative data on the organization of teaching the disciplines of architectural and artistic profile.

The questions referred to the methods used in the educational process to train future architects and artists in higher educational institutions of Libya. Also, the instructors were questioned about the advantages of innovative methods and their combination in the process of teaching the disciplines of the architectural and artistic profile. We informed the faculty members about the research objectives and all the teachers confirmed they participated voluntarily in the survey. Figure 1 shows the form used to question the teachers.

Figure 1

Form Used to Question the Teachers

You are participating in the close-open survey to reveal the most effective methods of teaching the disciplines of the architectural and artistic profile. You are kindly requested to fill in the following form. The survey results will be used to elaborate practical recommendations for the teachers of Libyan higher educational institutions training future architects and artists. Please, try to answer the questions objectively. Thank you for your help!

1. Choose the teaching strategies and methods you use most often in the educational process. Grade your answers in four points where 4 means the method is very effective and lead to rapid improvements of educational process, 3 = is partially effective and demonstrates rare drawbacks, 2 = do not use because do not have sufficient educational environment, 1 = never use because method does not show effectiveness and does not contribute to improvements of educational process.

activity simulation
 asynchronous online learning
 attending construction sites
 brainstorming
 case study
 class discussion
 class presentations
 classroom teaching
 combination of theory and practice
) educational conference
) cooperative technologies
) dialogues
) drawing and modelling exercises
) e-learning and m-learning activities
) expert seminar
) face-to-face students' exchanges
) face-to-face discussion
) field trips
) flipped classroom
) focus groups
) game-based learning
) graduation project
) instructor's feedback
) interactive lectures
) interactive simulations
) interdisciplinary activities
) interview
) learning diaries
) microlectures
) MOOCs
) peer learning
) presentation of real-life situation
) project-based learning
) quiz
) role play
) school-enterprise cooperation
) scientific research
) self-assessment
) self-study
) storytelling
) study visits
) synchronous online learning
) teamwork
) traditional lectures
) use of smart communication programs
) use of spatial composition models
) videolectures on real cases
) virtual learning activities
) virtual laboratory
) work with textbook

Source: based on literature review.

Also, the teachers were asked to answer open-ended questions to reveal the difficulties faced within the educational process and describe the solutions they use to improve the teaching of disciplines of the architectural and artistic profile. The questions were the following:

- 1) What prevents you from using innovative methods in the process of teaching?
- 2) Are all the lessons you conduct are effective and of high-quality? How do you assess students' learning outcomes: high, sufficient, low, or insufficient?
- 3) If some of your lessons fail, why does it happen? Does it belong on students' skills, peculiarities of educational environment, digital technologies, or your pedagogical mastery?
- 4) How do you improve the educational process?
- 5) Do you use single method or combine some methods to achieve the pedagogical intention?
- 6) If you use the combined methodology while teaching the disciplines of architectural and artistic profile, what advantages can you describe?
- 7) Do you agree that the combined methodology lead to the significant improvements of educational process?

Data Analysis

We analyzed the qualitative and quantitative data obtained during the teachers survey and managed to find out the widely used teaching strategies methods used for architectural education. Also, the teachers' answers helped us describe outline the peculiarities of the teaching the disciplines of the architectural and artistic profile and elaborate the recommendations for the further improvements of educational process. The findings are presented in the sections Research Results and Discussions.

Research Results

The survey showed that teachers in Libyan higher educational institutions use different teaching strategies and methods. The methods include traditional face-to-face methods as well as innovative methods based on digital technologies. We have found that computer-based approaches to organization of educational process have been widely used recently due to COVID-19 pandemic and gradual digitalization of society. Table 1 shows the analysis of using various methods in the process of teaching the disciplines of the architectural and artistic profile.

Table 1*Use of Methods in Teaching of the Disciplines of the Architectural and Artistic Profile*

Methods used	Teachers' answers			
	The method is very effective and lead to rapid improvements of educational process.	The method is partially effective and demonstrates rare drawbacks.	The method shows low effectiveness due to insufficient educational environment.	The method shows low effectiveness and does not contribute to improvements of educational process.
activity simulation	21,4 %	33,7 %	29,5 %	15,4 %
asynchronous online learning	12,8 %	23,9 %	49,1 %	14,2 %
attending construction sites	11,7 %	26,6 %	50,1 %	11,6 %
brainstorming	28,9 %	32,1 %	18,6 %	20,4 %
case study	13,6 %	27,2 %	32,5 %	26,7 %
class discussion	29,4 %	38,5 %	28,1 %	4,0 %
class presentations	21,3 %	31,9 %	29,7 %	17,1 %
classroom teaching	20,8 %	40,3 %	28,4 %	10,5 %
combination of theory and practice	40,5 %	29,2 %	17,8 %	12,5 %
educational conference	5,6 %	29,1 %	34,7 %	30,6 %
cooperative technologies	23,0 %	37,0 %	34,5 %	5,5 %
dialogues	21,7 %	31,2 %	29,5 %	17,6 %
drawing and modelling exercises	14,8 %	32,1 %	30,6 %	26,5 %
e-learning and m-learning activities	24,4 %	33,6 %	22,1 %	19,9 %
expert seminar	8,1 %	17,3 %	50,4 %	24,2 %
face-to-face students' exchanges	11,1 %	28,2 %	38,5 %	22,2 %
face-to-face discussion	35,8 %	37,6 %	24,1 %	2,1 %
field trips	9,7 %	28,9 %	39,4 %	22 %
flipped classroom	12,0 %	29,9 %	45,7 %	12,4 %
focus groups	13,1 %	31,7 %	32,5 %	22,7 %
game-based learning	21,9 %	37,6 %	20,4 %	20,1 %
graduation project	26,7 %	40,1 %	19,6 %	13,6 %
instructor's feedback	3,8 %	18,9 %	50,6 %	26,7 %
interactive lectures	7,6 %	20,1 %	43,5 %	28,8 %
interactive simulations	12,9 %	27,8 %	37,9 %	21,4 %
interdisciplinary activities	28,0 %	32,9 %	27,8 %	11,3 %
interview	13,9 %	39,4 %	20,5 %	26,2 %
learning diaries	2,7 %	19,6 %	50,5 %	27,2 %
microlectures	7,6 %	25,9 %	43,1 %	23,4 %
MOOCs	14,7 %	39,9 %	32,2 %	13,2 %
peer learning	3,8 %	23,5 %	39,3 %	33,4 %
presentation of real-life situation	17,2 %	29,4 %	33,9 %	19,5 %
project-based learning	23,0 %	33,1 %	28,1 %	15,8 %

quiz	9,5 %	30,5 %	32,2 %	27,8 %
role play	7,9 %	17,9 %	40,6 %	33,6 %
school-enterprise cooperation	23,7 %	32,9 %	29,5 %	13,9 %
scientific research	29,0 %	40,8 %	12,9 %	17,3 %
self-assessment	19,5 %	34,7 %	28,8 %	17,0 %
self-study	30,6 %	32,5 %	11,7 %	25,2 %
storytelling	14,3 %	29,3 %	31,6 %	24,8 %
study visits	21,8 %	28,6 %	21,9 %	27,7 %
synchronous online learning	20,6 %	30,0 %	29,4 %	20,0 %
teamwork	39,6 %	38,7 %	12,7 %	9,0 %
traditional lectures	29,6 %	36,5 %	11,9 %	22,0 %
use of smartcommunication programs	21,4 %	38,9 %	20,4 %	19,3 %
use of spatial composition models	18,6 %	29,5 %	30,7 %	21,2 %
videlectures on real cases	10,2 %	31,8 %	26,4 %	31,6 %
virtual learning activities	28,5 %	30,6 %	28,0 %	12,9 %
virtual laboratory	20,7 %	22,8 %	30,5 %	26,0 %
work with textbook	21,8 %	34,7 %	24,4 %	19,1 %

Source: based on survey results.

The findings demonstrate that most teachers prefer using activity simulation (33,7 %), class discussion (38,5 %), classroom teaching (40,3 %), face-to-face discussions (37,6 %), graduation project (40,1 %), MOOCs (39,9 %), school-enterprise cooperation (32,9 %), use of smart communication programs (38,9 %), and work with textbook (34,7 %) despite of rare drawbacks they bring. At the same time a number of methods are used quite rarely. They include the following: case study (26,7 % of teachers avoid using it), educational conference (30,6 %), instructor's feedback (26,7 %), interactive lecture (28,8 %), learning diary (27,2 %), quiz (27,8 %), study visits (27,7 %), storytelling (24,8 %), and virtual laboratory (26,0 %).

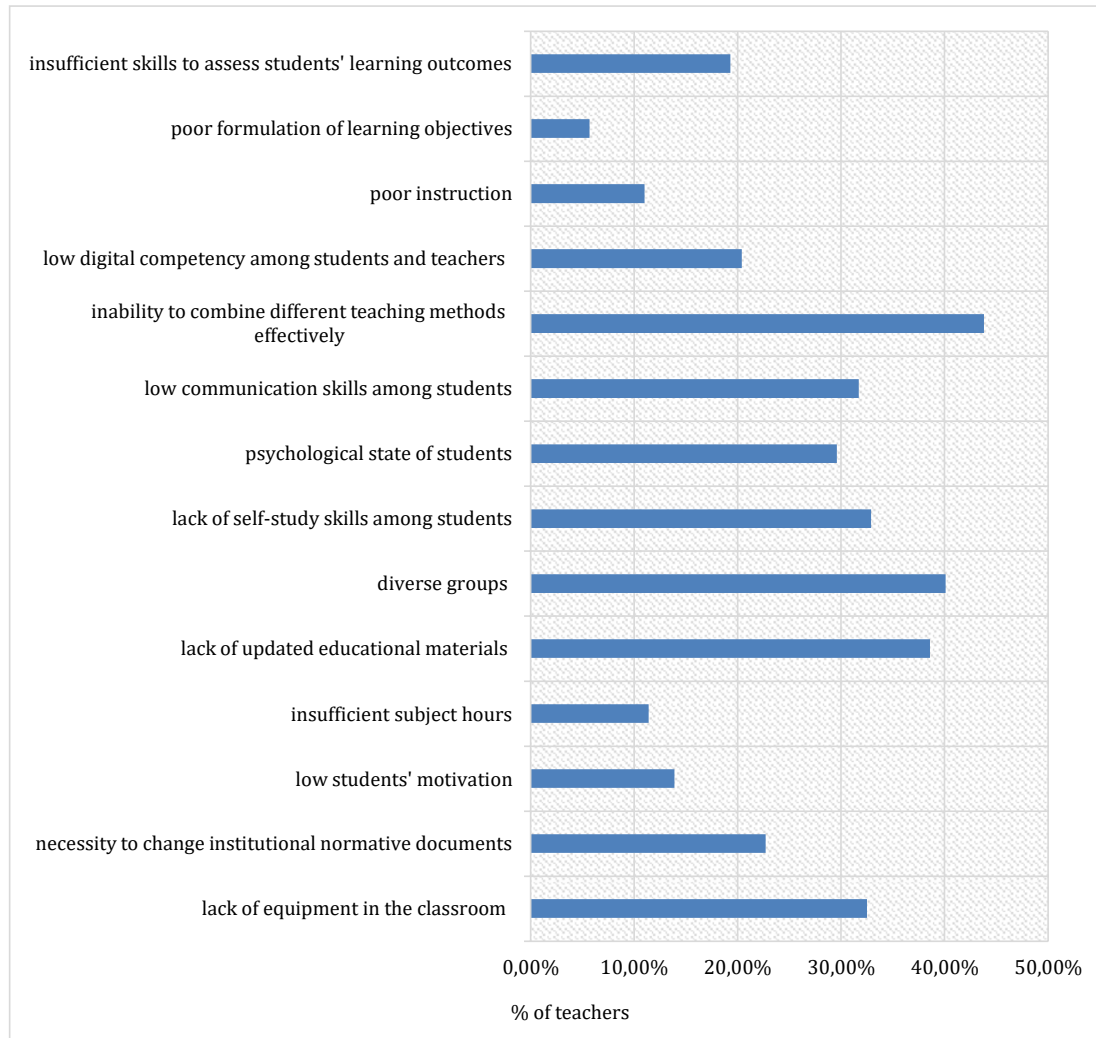
Analyzing the use of teaching methods, we have found that many of techniques are not implemented because the teachers face a number of difficulties. Figure 2 shows the analysis of difficulties the teachers face while teaching the disciplines of the architectural and artistic profile.

The results demonstrate that the teachers face a number of difficulties in the educational process and this fact makes the teaching less effective. The difficulties that occur the most often include the following: lack of equipment in the classroom and insufficient educational environment (32,5 %), lack of updated educational materials and necessity to design new teachers' guidelines on the basis of existing requirements (38,6 %), diverse groups and problems with explanation of new material in accordance with curriculum (40,1 %), teachers' inability to combine different methods in the classroom (43,8 %), lack of self-study skills among students and their low competency to perform learning activity independently (32,9 %), low communication skills among students that cause to poor performance of

interactive exercises like discussions, brainstorming, presentations, and project-based learning (31,7 %), low digital competency of teachers and students (20,4 %).

Figure 2

The Difficulties Facing in the Process of Teaching the Disciplines of the Architectural and Artistic Profile

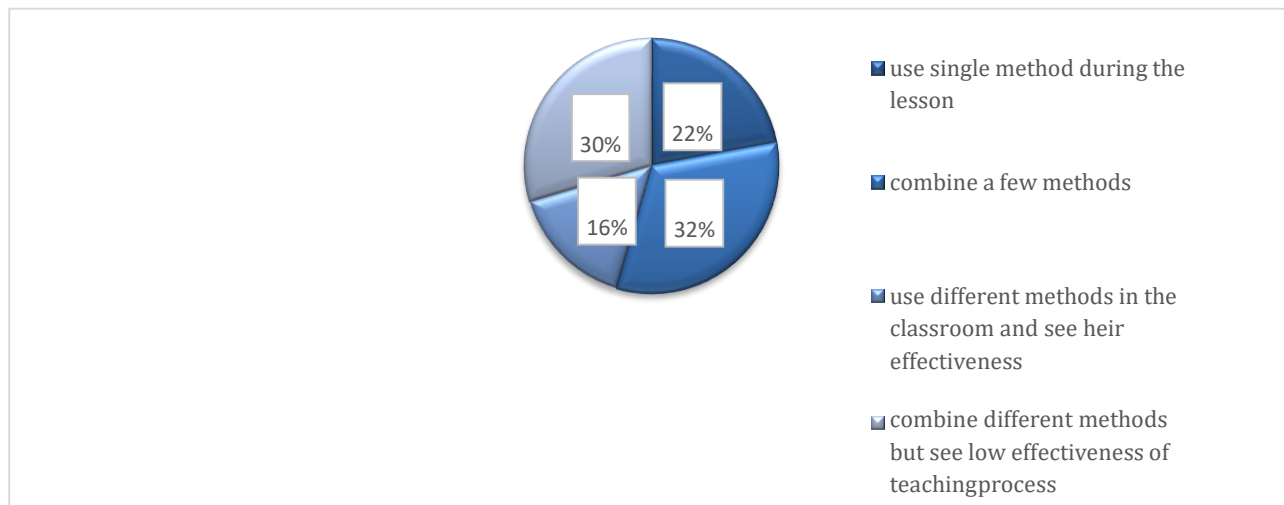


Source: based on survey results.

The survey found that the most teachers face difficulties with combining the teaching strategies or methods. This fact made us to study the number of teachers who use single method or combine different methods in the classroom. The findings show that 22 % of teachers use single method during the lesson, 32 % combine a few methods in the educational process; only 16 % use different methods in the classroom and consider they are used effectively and improve the educational process significantly, and 30 % of teachers combine different methods but see the low effectiveness of teaching process. Figure 3 demonstrates the teachers' readiness to combine different methods while teaching the disciplines of architectural and artistic profile. These results demonstrate that the single method cannot enhance the educational process and to make teaching the disciplines of the architectural and artistic profile effective and qualitative; the teachers must combine different methods and use them depending on the students' needs, the peculiarities of educational environment, the curriculum used at the higher educational institution and the requirements of employers.

Figure 3

The Analysis of Teachers' Readiness to Combine Different Methods



Source: based on survey results.

Discussion

The review of concerned literature and the close-open survey conducted among the teachers of Libyan higher educational institutions showed that a great number of different teaching strategies and methods are used in the educational process. The teachers are armed with traditional face-to-face activities like lecture or seminar, innovative interactive methods including pore play, brainstorming, interactive lecture, or project-based learning.

Similarly, recently digital technologies like virtual learning, online learning, use of MOOCs, are extensively used. In addition, a great attention is paid towards school-enterprise cooperation, onsite visits, and mutual projects with professionals, presentation of real-life situation, scientific trips, etc.

The findings show that the use of teaching methods depends on many factors (Lotfabadi & Mousavi, 2022; Shafter & Cheptoo, 2020; Zaed & Chen, 2021). They include students' needs and learning performance, their individual psychological characteristics and readiness to accomplish different types of activities, students' motivation to learning activity and future profession, the structure of curriculum and interdisciplinary links, employer's requirements, teachers' mastery, technological equipment of educational environment, availability of teachers' guidelines and requirement to follow them strictly, cooperation with industry and possibility for students to visit construction sites and solve real-life situations. All of the teaching methods have their advantages and can be used under certain conditions within the educational process (Bibi et al., 2022; Makowska, 2019).

According to Allanyazov (2021), a teaching method should be productive, informative and satisfying as to enhance the educational process and to improve students' learning outcomes. Table 2 shows the analysis of the methods used in teaching of the disciplines of the architectural and artistic profile and outlines their advantages for enhancement of the teaching process.

Table 2

The Analysis of Methods in Teaching of the Disciplines of the Architectural and Artistic Profile

Methods used in teaching of the disciplines of the architectural and artistic profile	Advantages of the used methods
Activity simulation	Helps exploring possible scenarios of real-life situation; contributes to self-assessment; allows applying theoretical and practical knowledge as well as interdisciplinary links
Asynchronous online learning	More flexible for the students and the teachers; allows the students learning on their own pace; helps teachers to build comfortable schedule, is cost-effective
Attending construction sites	Provides good practice; helps analysing real-life situations
Brainstorming	Is an easy and quick class activity; contributes to the formation of teambuilding and problem-solving skills; creates effective student-centered activity; improves communication skills, encourages creativity
Case study	Involves the students in research projects and allows organising professional discussion; encourages critical thinking; contributes to the formation of creativity, the decision-making, and the professional flexibility
Class discussion	Helps to the knowledge exchange; motivates to do home assignments; develops communicative skills; decision making, analytical thinking
Class presentations	Improves self-education skills; facilitates creativity and critical thinking
Classroom teaching	Provides social interaction; helps organising real time learning; facilitates the collaboration
Combination of theory and practice	Demonstrates the ability to use knowledge and skills in order to solve professional tasks; facilitates interdisciplinary links, improves analytical skills
Educational conference	Allows both students and teachers to demonstrate their competency and mastery; develops critical thinking, planning, management, and creativity
Cooperative technologies	Improves leadership and decision-making, conflict management skills; facilitates teambuilding; develops personal responsibility for own activities; enhances self-confidence; improves communication skills

Dialogues	Develops communication skills; improves knowledge and experience; helps to improve teambuilding; enhances efficiency of explanation of theoretical material
Drawing and modelling exercises	Enhances the knowledge in the discussed topics; is used as practical exercise to complement theoretical activities; develops professional architectural competency; enhances artistic imagination
E-learning and m-learning activities	Optimization of educational process; increases flexibility and self-discipline; improves digital competency; motivates to learning activity; develops decision-making skills; contributes to adaptability in learning; fewer space is required
Expert seminar	Provides the possibility to study experts' experience; motivates to future professional activity
Face-to-face students' exchanges	Provides new experience; improves motivation to learning; develops communication skills and teambuilding; develops creativity; improves foreign language knowledge
Face-to-face discussion	Builds more effective communication; increases knowledge; forms peer learning skills; improves teambuilding and creativity; develops problem-solving and decision-making
Field trips	Enhances knowledge exchange; improves motivation to future profession; forms new approaches to problem-solving; develops creativity
Flipped classroom	Improves students' engagement; uses the time efficiently; activates students' learning; develops self-discipline
Focus groups	Allows applying creative approaches; develops communication skills; increases knowledge
Game-based learning	Improves students' creativity and imagination; makes learning more enjoyable and relevant to students
Graduation project	Helps to demonstrate interdisciplinary knowledge and skills; assesses the readiness to professional activity; develops analytical skills; improves professional independence

Instructor's feedback	Helps to understand students' needs; improves assessment
Interactive lectures	Improves traditional lecture, makes it more interesting and enjoyable; helps to engage all the students; develops concentration and critical thinking skills
Interactive simulations	Facilitates students' cognitive activity; improves learning outcomes; forms professional flexibility; gains new experience
Interdisciplinary activities	Integrates all the knowledges and skills in order to solve professional tasks more effectively
Interview	Develops flexibility and communication skills; helps assessing more objectively; students are able to demonstrate their knowledge
Learning diaries	Forms new approaches to the assessment and self-assessment; helps to revise the material
Microlectures	Make the traditional lectures interesting; develops concentration; helps to acquire both theoretical and practical knowledge
MOOCs	Provides access to the course; makes the material interactive; helps to assess the knowledge immediately; develops course flexibility; summarizes the information learned
Peer learning	Builds teambuilding; helps to revise the material; forms leadership skills; improves communication skills
Presentation of real-life situation	Gains new integrated experience; builds interest and motivation; provides self-assessment; helps to study additional material on the interesting topics
Project-based learning	Provides deeper engagement with educational content; build interaction between students; encourages problem-solving skills; develops teambuilding; helps to engage with enterprises and industries; improves collaboration and communication skills
Quiz	Helps to check the knowledge quickly and effectively; helps to concentrate on learning; is fun and interesting; helps to learn small details on the topic

Role play	Reproduces real-life professional situations; develops decision-making and communication skills; increases motivation to learning activity
School-enterprise cooperation	Introduces real-life scenarios; provides contact with real construction site and materials; explains how all the elements work; forms interaction with environment
Scientific research	Improves self-study; builds motivation and interest; deepens professional knowledge and skills; forms problem-solving skills
Self-assessment	Encourages to reflect their learning performance; improves learning outcomes; develop objectivity and critical thinking
Self-study	Encourages to study more effectively; inspires motivation and curiosity; enhances self-confidence; facilitates problem-solving; contributes to time-management skills
Storytelling	Helps to summarize all the material in interesting way; contributes to creativity and communication skills
Study visits	Improves teambuilding, the work, develops communication skills, problem solving skills and decision making that are only obtained through life experience
Synchronous online learning	Allows to interact with presents and with each other; the students can discuss the problem and find the solution together; the teacher can answer the question in real time; improves time-management, communication skills and flexibility
Teamwork	Improves communication skills; develops self-confidence; builds leadership skills; enhances collaboration in the group; makes studying more interesting; gives the possibility to share ideas equally;
Traditional lectures	Helps to create new ideas; provides all the material in concise structure; is supported with necessary technical aids; is economical; helps to cover lots of material; gives control over the audience in the classroom; develops concentration and analytical thinking
Use of smart communication programs	Simplify the educational process; facilitate to less formal communication between the participants of educational process; improves teambuilding

Use of spatial composition models	Improves professional competence; helps to simulate architectural and artistic problem-solving
Video lectures on real cases	Optimizes the education process; allows to invite outstanding lecturers; helps to repeat the video and to learn the material deeper
vVirtual learning activities	Improves digital skills; helps to use various methods; encourages to continuous learning; increases the interest to professional activity
Virtual laboratory	Develops new approaches to solve problems; provides digital experience; form new integrated professional competency; motivates to professional activity
Work with textbook	Provides deep knowledge; easy to use; provides self-study skills

Source: based on literature review and survey results.

The findings show that a small amount of teachers use a single method while teaching the disciplines of the architectural and artistic profile in Libyan higher educational institutions. This means than in order to make the educational process effective and qualitative it is necessary to combine different teaching strategies and methods. This approach demands some changes in the classroom and efficient implementation of combined methodology needs introduction of favourable conditions of the educational environment. It was found that teachers are required to take a number of measures dealing with organization, methodology, pedagogical psychology, and curriculum content (Baig et al., 2020; Pllana, 2021; Ruggiero, 2021) to make the educational process more efficient. These measures are the following:

- 1) Combine different teaching methods considering students' needs, peculiarities of educational environment, and employer's requirements;
- 2) Choose productive, interesting, and informative methods to enhance students' learning outcomes;
- 3) Correspond the teaching methods with learning objectives and educational content;
- 4) Build curriculum considering the latest advancements in the architectural and artistic field;
- 5) Plan the lesson in advance to effectively implement the methods. If it is possible, provide some methods to perform the same activity;
- 6) Improve digital technology in order to use computer application more effectively;
- 7) Use of various computer applications to facilitate the educational process including Autodesk, Adobe Photoshop, Adobe Illustrator, Microsoft Office, GIS, Blender 3D, Design Builder, Sketch up and consider them in the curriculum;

- 8) Conduct research projects, facilitate mutual projects with professionals in the field to gain real- life experience and form problem-solving skills;
- 9) Apply activities and projects that are close to reality and more practical;
- 10) Facilitate students' participation in real projects in the industry and also organize their involvement in the community projects to help the locals;
- 11) Integrate the educational process with professional activity;
- 12) Facilitate students' interaction while learning that means using interactive activities extensively, including games and teamwork;
- 13) Apply social media and smart communication programs to simplify the educational process and to motivate the students to learning activities;
- 14) Introduce interdisciplinary links to form integrated professional competency;
- 15) Take part in international projects and encourage students to join face-to-face exchanges to gain new experience;
- 16) Encourage self-study skills and motivate to continuous learning;
- 17) Pay attention to new trends in architectural and artistic work and introduce them in the curriculum;
- 18) Concentrate on clear and accurate instruction; provide the students with the preparatory phase if it is necessary;
- 19) Involve students in feedback activities and recommend carrying out self-assessment activities while doing different tasks;
- 20) Pay attention to combine theory and practice;
- 21) Develop environmental awareness, respect to social values and heritage through the educational materials;
- 22) Use a number of activities for revision the material like quiz, group discussion, storytelling, project-based learning;
- 23) Consider that the methods used in the process of teaching must form soft skills as well (such as communication skills, creative thinking, decision-making, leadership, time-management, professional flexibility, adaptability to changing environment, teambuilding, etc.).
- 24) Use foreign advancements in the field of architectural or artistic education in order to make the teaching more effective;
- 25) Provide a number of electives to meet students' needs and abilities;
- 26) Adopt advanced teaching approaches and strategies, include innovative technologies such as simulations or BIM.

27) Assess the curriculum on regular basis and change the teaching approaches depending on learning objectives.

Thus, the effectiveness and quality in the teaching process of architectural and artistic disciplines in Libyan higher educational institutions depends on the choice of appropriate strategies and methods. One found that relevant combination of various teaching methods can significantly improve the educational process. The use of combined methodology depends on different objective and subjective factors including students' needs, learning objectives, peculiarities of educational environment, employer's requirements, and pedagogical mastery of teachers. The used methods must be productive, informative, and satisfying. Correspondingly, the teaching methods must be selected considering their interactivity, innovation, use of technology, orientation towards real-life situation. Moreover, the methods must contribute to the improvement of integrated professional competency on the basis of interdisciplinary links and formation of soft skills necessary for professional activity in the changing environment.

Conclusions and Implications

Intensive social, economic and cultural transformations bring significant changes in architectural education. In the Libyan context, architects and urban planners must pay special attention to the development of environmental, social and economic dimensions of new construction projects. That is why architectural education in Libya requires special attention and needs continuous development because of the changing nature of architectural practice and technological modifications. Today the Libyan higher education sector suffers from a number of difficulties like the absence of proper planning and the use of ineffective teaching strategies. Due to this, Libya's education system must be rapidly modernized basing on technological advancements and progressive educational programmes.

The research differentiates some approaches to the organization of architectural education. They include the traditional approach, the school-enterprise cooperation, the digital training, and the international cooperation. Each of these approaches provide a number of teaching strategies and methods. The teachers in Libyan higher educational institutions use different teaching strategies and methods. The methods include traditional face-to-face methods as well as innovative methods based on digital technologies. It was found that computer-based approaches for educational process organization have been recently widely used due to the COVID-19 pandemic and the gradual digitalization of society. The findings demonstrate that most teachers prefer using activity simulation, class discussion, classroom teaching, face-to-face discussions, graduation project, MOOCs, school-enterprise cooperation, use of smart communication programs, and work with textbook despite of rare drawbacks they bring. At the same time rare methods include case study, educational conference, instructor's feedback, interactive lecture, learning diary, quiz, study visits, storytelling, and virtual laboratory.

One found that the teachers avoid using a number of innovative methods because they face some difficulties like the lack of equipment in the classroom and insufficient educational environment, the lack of updated educational materials and the necessity to design new teachers' guidelines on the basis of existing requirements, diverse groups and problems with explanation of new material in accordance with curriculum, teachers' inability to combine different methods in the classroom, the lack of self-study skills among students and their low competency in independent learning activity performing, low communication skills among students that cause poor performance of interactive exercises like discussions, brainstorming, presentations, and project-based learning, low digital competency of teachers and students.

In addition it was found that a small amount of teachers use a single method while teaching the disciplines of the architectural and artistic profile in Libyan higher educational institutions. This means that in order to make the educational process effective and qualitative it is necessary to combine different teaching strategies and methods. This proves that the selection of effective teaching methods for classroom activities or students' self-study must follow certain requirements. These requirements include: interactivity, student-centered learning, innovation, cooperative technologies, high productivity, informative content, the use of computer technologies. Also, the use of combined methodology depends on students' needs, learning objectives, peculiarities of educational environment, employer's requirements, and pedagogical mastery of teachers, and interdisciplinary links.

The research contributed to the elaboration of recommendations for the teachers of architectural and artistic disciplines in order to apply the combined methodology in the educational process.

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