



# Measuring The Effectiveness of Using Modern Teaching Strategies in Developing Architectural Design Students' Skills (A Case Study of West Bank-Palestine)

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## KEYWORDS:

*Modern teaching strategies*  
*Architectural design course*  
*Students' skills*  
*Instructor.*

**Abstract:** This research aims to explore the effectiveness of using modern architectural design teaching strategies in developing students' skills from the viewpoint of instructors. The research was applied to two universities out of three in the West Bank - of Palestine that teach architecture. The research sample consisted of (18) instructors selected intentionally from the research community. The approach used is the descriptive and analytical approach based on the questionnaire verified for its validity and stability. The results indicated that all the degrees of using strategies are high, and the highest used strategies are the strategy for developing thinking skills, followed by the strategy for developing cognitive skills, and finally, the strategy for improving the environment. The results also showed that there are no statistically significant differences in the effectiveness of using modern teaching strategies in developing students' skills due to the variable (workplace, specialization, number of experience years), and the presence of statistically significant differences attributable to the scientific qualification variable in favor of scientific qualification (Ph.D.). In the field of developing social skills. The research concluded with several recommendations and proposals in light of their results.

## I. INTRODUCTION

**A**RCHITECTURAL education is an educational field. It mainly aims to prepare a highly qualified architect to successfully organize a profession that undergoes rapid development in a professional competition atmosphere that moves from the local and regional levels to the global level. Continuous development should be provided to achieve a high level of university education appropriate to respected universities [1].

Teaching strategy: the method chosen in advance by the instructors, which he plans to use during teaching to achieve the desired teaching objectives with the utmost effectiveness and in light of the available capabilities [2]. Architectural Design Studio: One of the courses taught in the Department of Architecture which considered as the heart of the architectural education process [3].

In Westbank, architecture is considered one of the most critical academic departments in the Engineering Faculties. Architectural education is newly established in Palestinian universities, which paved the way for the future. The

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architectural education process began in Palestine at the first of the eighties of the last century. Table 1 shows the date of establishment of the three architectural departments in the West Bank [1,4]. The establishment of the Engineering Faculties and the Architecture Departments was during difficult circumstances as a lack of educational facilities. There was difficulty in linking specializations to the needs of the Palestinian community and a lack of educational facilities and competencies [4].

TABLE 1  
ARCHITECTURAL DEPARTMENTS IN THE WEST BANK

	Palestinian universities at West Bank	University Founding year	Location /West Bank	Architecture Department/ Founding year
1	An-Najah Univ.	1977	Nablus /North	Yes/1980
2	Birzeit Univ.	1972	Ramallah /Middle	Yes/1989
3	Polytechnic Univ.	1978	Hebron/ South	Yes/1995
4	The American Univ.	1997	Jenin/ North	no
5	Hebron Univ.	1971	Hebron/ South	no
6	Bethlehem Univ.	1973	Bethlehem/ South	no

Three universities have architecture programs in the West Bank. The scientific-educational aspect consists of four specialties and scientific directions (architectural design, planning, environment, history, theories of architecture, building science, and implementation technology).

The research problem derived from several issues: (1) Through what the researcher reached from the results of research they did on the reality of using modern teaching strategies in teaching the architectural design studio [5]. (2) Through extrapolation of some studies that dealt with the effectiveness of using modern teaching strategies in developing students' skills, and which stated that the difference of instructors' methods leads to making the student frustrated, hesitant, or weak. (3) The difference in schools of thought to which an architectural design instructor belongs makes the possibilities of understanding without a clear methodology for education impossible.

The research problem is determined by answering the following questions which state the following: "How effective are modern teaching strategies in developing student skills (cognitive, social, emotional, thinking skills, improving the environment, lecturing management, student interaction) from the instructors 's point of view?" Moreover, "Are there differences in the effectiveness of using modern teaching strategies in developing student skills from the viewpoint of instructors due to (workplace, academic qualification, number of experience years, and specialization)?" In West Bank-Palestine.

The research aims to know the effectiveness of modern teaching strategies in developing students' skills (cognitive, social, emotional aspects, thinking skills, improving the environment, lecture management, and student interaction) from the viewpoint of the instructors.

### A. Research Methodology

Researchers use the descriptive and analytical approach to accomplish the research goals in its implementation. It is the most appropriate method for this research by examining hypotheses and stating the relationship between its components and the views presented about them. It depends on the description of the reality or phenomenon as it exists. This study starts with a problem definition. The research methodology steps of this study are:

1. The study began with a problem definition and then the theoretical approach to clarify and investigate the effectiveness of using modern teaching design studio strategies from previous studies.
2. The study progressed into a survey (the questionnaire) to investigate the effectiveness of applying modern teaching strategies.
3. Then a survey was applied using (questionnaire) which formulated and. The researcher employed this survey to decide if there are differences in the degree of using modern teaching strategies in the design studio due to many variables (gender, workplace, academic qualification, number of experience years, and specialization)
4. Using SPSS to analyze data
5. Results clarified a specific description of the actual situation.

## II. LITERATURE REVIEW

Teaching methods for architecture design studios enable design educators to provide a comprehensive approach to the design process. Integrating theoretical and practical courses into the design studio is one of the most successful teaching strategies because of its significant role in teaching architectural courses. The students were also aware of how the relations between technical knowledge originating from theoretical and practical courses (e.g., construction, lighting design, and building services) could produce a successful project in a design studio [6]. It is also an organized mental process; through it, we can deal with multiple types of information and merge them into one group of ideas and end with a clear vision of those ideas. This vision usually appears in the form of drawings or timetables and includes the method and the product simultaneously. So how to deal with such courses to achieve their expectations is an essential matter [7,8]. Design studio also allows the student to develop his presentation's capabilities, discussion, and architectural criticism. Prepare practical life for them by simulating the architectural environment offices within the design studio [8].

The design studio is a widespread learning environment for learning and teaching, a culture created by students and studio instructors working together. [9]. It is considered a particular type of education in which the student gets knowledge through his professors and learns from them through direct guidance and by extrapolating the methods of teaching architectural design [10]. Traditional teaching design studio strategies, such as a project-based design practice, concentrate on hypothetical

rather than practical education [11]. Architecture education experts design models and new teaching strategies such as Problem-Based, Blended, Work-Based, and Distance Learning. Applying modern educational models and changes to based-processes strategies from a content perspective. To transition to field training and reflect digital knowledge from general education [12]. design studio instructors sometimes apply Classroom-based strategies that extricate theory from practice verified undersized efficiency than active learning strategies [13]. Virtual reality as an educational tool has lately had a positive influence on spatial design [14]. Pedagogues in design studios create different teaching strategies that support Learning by Doing, Reflection, Cased-Based, Arguing, and Learning by Exploring Arguing [15].

In general, knowing the effectiveness of using modern architectural design teaching strategies in developing students' skills is evident. It helps students get an excellent opportunity to provide them with knowledge and develop their design skills to apply theoretical information in architectural projects, develop their capabilities in architectural discussion and criticism, and prepare them for their practical life [16].

The use of effective and collaborative teaching methods offers an excellent opportunity to equip students with the knowledge and skills they wish to develop [17]. It is essential to rely on teaching the systematic and organized thinking method, as it is the strategy that is compatible with this professional field (architectural design) [18]. The concepts of traditional education can no longer comprehend the current developments and future technologies imposed by the nature of the stage and era. These concepts are not helpful in evaluating the fields of knowledge involved in the information revolution except by using advanced technology and new evaluation methods according to international standards [19].

The use of multimedia technologies such as computers is an effective method for transferring knowledge to students, and some modifications must be made to traditional teaching methods [20]. Teaching architectural design suffers from fundamental problems that make the student frustrated, hesitant, or weak, which can be summarized as being not subject to a clear methodology but rather following the teacher's directions which made the accumulation of experience and knowledge desired from a series of successive courses a lost process [16].

### III. NEW TEACHING STRATEGIES

The predominance of some methods, such as studio design and theoretical lectures in the traditional educational curriculum for the architectural design process, affect the progress of engineering students and the development of their skills in education. It made proposals, including the opportunity for students for experimental education, explaining its benefits and role for students, as well as adopting a travel curriculum that provides the possibility to work on real projects in different countries, and enhances their knowledge about architecture and

its various styles all over the world, which increases their interest in architecture and takes them to higher levels of creativity [16].

In university teaching, various modern teaching strategies are used and clarified in part one of this study [3]. Such as Brainstorming strategy, Problem-solving strategy, Group work Strategy [21,15]., Project-based learning [22], Lecturer's strategy (developed), Method of scientific trips and visits, Direct teaching strategy, Exploratory method (inductive and deductive), Seminars, E-learning, Classroom-based, Using critical thinking, Active learning strategy, Virtual reality tool based learning, Discussion strategy, Inquiry-based learning strategy, Experts' interview, Practical presentations, Role-playing strategy, Intensive courses, Based-processes learning, Programmed instruction, Small-Group Teaching Strategy, Work-Based Learning, Tutorial method, Keeler's Self-Learning Strategy or Learning for Mastery, Laboratory experiments, Blended Learning[23], Simulated social skill training, Micro-teaching, Peer-to-peer learning, and Double layered learning [3].

Based on the above and through the reviews of previous studies, it can be said that the use of modern teaching strategies affects the progress of students and their skills development in education and enhance their knowledge about architecture and its various styles, which increases their interest in architecture and moves them to higher levels of creativity. As a step that seeks to advance architectural education in Palestine by following clear teaching strategies based on scientific principles that work on forming architectural thought, combine academic and practical learning, and provide a distinct level for the student of architectural education in general and architectural design in particular, as it is an applied course of a unique nature that varies for other courses in different specialties of engineering sciences.

## IV. RESEARCH METHODS

### A. Research Importance

The value of the study derives from the importance of good education that depends on the presence of well-qualified instructors who use appropriate teaching strategies to ensure that the student obtains the best knowledge and skills necessary to meet the new burdens placed on him. Also, developing architectural education in order to keep pace with the era, accommodate changes and developments, and contribute effectively to developing the practice of the architecture profession.

### B. Search Limits

Search results are associated with the limits of architectural design studio instructors in some universities in the West Bank (Palestine Polytechnic University in Hebron, Birzeit University in Ramallah).

### C. Research Community

The study community consisted of all Architecture Departments members (the total number is 25 instructors who specialize in Architecture or City Planning and participate in teaching the Architectural Design Studio at its various levels in the universities of the south and the center of the West Bank-Palestine.

### D. Research Sample

The sample consisted of (18) instructors of the Architecture Engineering Departments who were involved in teaching the Architectural Design Studio in the universities of the West Bank. The instructors who specialize in architecture or city planning were chosen by the intentional method, as the sample included the entire research community, the research tool (questionnaire) was distributed to all 25 instructors, and 18 questionnaires were retrieved. Thus, the recovery rate is 72%, an acceptable percentage to complete the research. The following Table 2 shows the distribution of the research sample according to the research variables. The universities where the research is applied have 25 instructors for both universities. The sample percentages are close to each other according to the number of respondents from the two universities in proportion to the total number of instructors from each university. Therefore, this sample is considered sufficient to conduct the study in question related to the study community, and the following table shows the sample details for the two universities in question.

TABLE 2  
THE DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

Variables	Alternatives	Figure	Percentage
Wok place	Polytechnic University	7	%38.9
	Birzeit University	11	%61.1
	Total	18	%100.0
Qualification	Master	9	%50.0
	PHD	9	%50.0
	Total	18	%100.0
Experience years	Less than 10 years	5	%27.8
	From 10 to 15 years	5	%27.8
	More than 15 years	8	44.4%
	Total	18	%100.0
Specialization	Architecture	13	%72.8
	City Planning	5	%27.8
	Total	18	%100.0

The sample was characterized by balanced proportions for both universities covered by this study, as shown in Table 3.

TABLE 3  
DISTRIBUTION OF THE SAMPLE TO THE UNIVERSITIES

University	Total Number of Department Members	Number of sample	Percentage of sample to the Total Department members	%
Polytechnic	10	7	70%	%38.9
Birzeit	15	11	73.3%	%61.1
Total	25	18	72%	%100.0

### E. Preparation of the Research Tool (Questionnaire)

In light of the review of the educational morals and previous studies related to modern teaching strategies and teaching strategies for an architectural design course, the research tool (questionnaire) was constructed, which consisted of (32) phrases divided into seven axes (cognitive skills, social skills, the emotional aspect, thinking skills, improving the environment, lecture management, student interaction). The answer to the paragraphs ranges from the answer (disagree) to the answer (to some extent) to the answer (agree) on the three-scale of (1-3).

### F. The Validity of the Questionnaire

The validity of the questionnaire was verified by giving it to a group of specialized judges, who made some comments and views about the validity of the scale in studying modern architectural design course teaching strategies and their effectiveness in developing students' skills from the viewpoint of the instructors. They demonstrated the validity and suitability of his statements for this purpose.

### G. The Questionnaire Stability

The researcher calculated the stability by using the internal consistency stability of the respondents' answers to the instrument areas using the stability coefficient of Cronbach alpha on the research community, and the results were as follows in Table 4:

TABLE 4  
STABILITY COEFFICIENTS

Field	Paragraphs' number	Stability coefficient alpha Cronbach
Effectiveness of modern teaching strategies in developing student's skills	32	0.86

As is evident from the previous table, the value of the stability coefficient for the field of the extent of effectiveness of modern teaching strategies in developing student skills reached (0.86), which indicates that the current research tool can reproduce between 86% of the current results if re-measuring, researching and using them once again under the same conditions. These values were considered appropriate and acceptable for research purposes and the objectives for which these areas and their expressions were developed.

### H. Search Variables

Demographic variables: (workplace, educational qualification, and number of experience years). Dependent variables: the total score for the two reality fields of using modern teaching strategies.

### I. Questionnaire Application

After the questionnaire statements were prepared in their final form, they were distributed to the research sample, and

then the questionnaires were retrieved from the sample members and entered into the computer and were processed statistically, and came out with the results and recommendations.

*J. The Correction Key*

After giving the sample members' attitudes numbers that represent significance for their directions from (1-3), the difference of the lowest value was calculated, which is 1 of the highest value, which is 3 = 2, which is called the range, then the range value was divided by the number of fields required in the judgment based on the results, which is 3 so that the result = 3/2 = 0.66. Then we continue to increase this value starting from the lowest value in order to give the periods for determining the level and intensity of the response depending on the arithmetic mean, and the following Table 5 indicates that:

TABLE 5  
TRIPLE CORRECTION KEY

The arithmetic mean	Level
Less than 1.67	Low
From 1.67 to less than 2.33	Average
From 2.33 and more	High

*K. Statistical Processing*

After collecting the research data, the researcher reviewed it in preparation for entering it into the computer, and it was entered into the computer by giving it specific numbers, which means converting the verbal answers into digital, where the answer was given an agreement or always 3 degrees, the answer to some extent or sometimes two degrees, and the answer does not agree or was given one degree. So that the higher the score, the greater the degree of replying to the teaching strategies of a modern architectural design course and its effectiveness in developing students' skills from the viewpoint of the instructors.

The necessary data statistical processing was carried out by extracting numbers, percentages, arithmetic means, and standard deviations. The research hypotheses were examined at the level ( $\alpha = 0.05$ ) using a t-test for independent samples and a single-variance analysis test. The Cronbach Alpha stability equation was used to examine the stability of the research tool, then using the SPSS statistical packages program [24].

**V. DISCUSSION AND RESULTS**

After completing the preparation and application of the research tools, data were collected, analyzed, and appropriate descriptive statistics were extracted. The following is the answer to the research questions and hypotheses. To answer the first main question, which states the following: "How effective are modern teaching strategies in developing student's skills (cognitive, social, emotional, thinking skills, improving the environment, lecture management, student interaction) from the

instructor's viewpoint?" The averages and standard deviations of the questionnaire statements related to this question were calculated, and the following Table 6 explains that. (Mean score (MS) for each statement was calculated using the following equation [25]:

$$MS = \sum_{i=1}^t = n \frac{(F_i \times S_i)}{N} \tag{2}$$

Where: S: the evaluation value (1-3) is provided to each participant's statement, F: is the frequency of the evaluation value to each rating (1-3) for each statement; and N: the total number of respondents for a specific statement.

TABLE 6  
TOTAL ARITHMETIC AVERAGES AND STANDARD DEVIATIONS OF THE FIELDS OF EFFECTIVENESS OF MODERN TEACHING STRATEGIES IN DEVELOPING STUDENT SKILLS.

#	Field	The arithmetic mean	Standard deviation	Level
1	Developing cognitive skills	2.80	0.22	High
2	Developing social skills	2.59	0.44	High
3	Paying attention to the emotional aspect	2.57	0.38	High
4	Improving thinking skills	2.83	0.18	High
5	Student's interaction within the lecture	2.57	0.51	High
6	Managing the lecture properly	2.60	0.49	High
7	Improving the environment	2.56	0.44	High
	Total degree	2.65	0.23	High

It is evident from the previous table that the total score of the effectiveness of modern teaching strategies in developing student skills was high, with the arithmetic mean of the total score (2.65) and the total standard deviation of (0.23). It is also evident that all the degrees of using strategies are high, and the most used strategies are the strategy of developing thinking skills, followed by a strategy of developing cognitive skills), and finally, a strategy of improving the environment. The researcher attributes this result to the fact that using effective modern teaching strategies that are compatible with the abilities, aptitudes, and tendencies of the students presents a good opportunity to equip them with the knowledge and skills they wish to develop.

To find out about each field of the research tool, the following sub-questions were answered:

- (1) First: How effective are modern teaching strategies in developing cognitive skills from the instructor's viewpoint? To answer this question, the arithmetic averages and the standard deviations were calculated for each of the questionnaire statements and arranged in descending order according to the degrees of the arithmetic mean, and the following Table 7 shows that:

TABLE 7  
THE ARITHMETIC MEANS AND STANDARD DEVIATIONS OF THE QUESTIONNAIRE STATEMENTS RELATED TO THE FIELD OF DEVELOPING COGNITIVE SKILLS.

#	The effectiveness of modern teaching strategies in developing student's skills	The arithmetic mean	Standard deviation	Level
1	It raises the student's perception of the educational material.	2.94	0.24	High
2	Increases student's understanding of the educational material.	2.89	0.32	High
3	Addresses some of the student's misconceptions.	2.83	0.38	High
4	Increases opportunities for students to acquire new concepts easily and quickly.	2.78	0.43	High
5	Helps the student to solve the applied problems easily.	2.56	0.51	High
	Total degree	2.80	0.22	High

The previous table indicates that the total degree of the respondents' attitudes toward the effectiveness of modern teaching strategies in developing cognitive skills was high, as the arithmetic means of the total degree was (2.8) and the total standard deviation was (0.22). The phrase (raises the student's perception of the educational material) came in the forefront of these phrases as the highest order, while the lowest order of the phrase (helps the student to solve applied problems easily). The researchers attribute this result to the point that using modern teaching strategies contributes to solving many obstacles in educational content presentation and provides the educational

content presentation with flexibility in an interesting and attractive form, which facilitates the process of assimilation and understanding, and helps students to master the scientific material or the content cognitive structure.

(2) Second: How effective are modern teaching strategies in developing social skills from the instructor's viewpoint? To answer this question, the arithmetic averages and the standard deviations were calculated for each of the questionnaire statements and arranged in descending order according to the degrees of the arithmetic mean, and the following Table 8 shows that:

TABLE 8  
THE ARITHMETIC MEANS AND STANDARD DEVIATIONS OF THE QUESTIONNAIRE STATEMENTS RELATED TO THE FIELD OF SOCIAL SKILLS DEVELOPMENT

#	The effectiveness of modern teaching strategies in developing social skills	The arithmetic mean	Standard deviation	Level
1	Offers opportunities to build relationships with other students.	2.78	0.43	High
2	Encourages the student to accept the other students' ideas.	2.67	0.49	High
3	Increases opportunities to collaborate with other students.	2.56	0.51	High
4	Provide an opportunity for students to take responsibility in performing work.	2.50	0.71	High
5	Helps the student to understand cultural elements of society.	2.44	0.70	High
	Total degree	2.59	0.44	High

The total degree presented in the previous table indicates that the respondents' attitudes towards the effectiveness of modern teaching strategies in developing social skills were high. The phrase (provides opportunities for building relationships with other students) in the forefront of these phrases. At the same time, the lowest order of the phrase (helps the student understand society's cultural elements. This is evidenced by the fact that modern teaching strategies have an influential role for the student in building good social relationships. It is no surprise that it emphasizes teamwork that includes mutual respect among students, interaction with each other, and severe communication.

(3) Third: How effective are modern teaching strategies in paying attention to the emotional side from the viewpoint of the instructors? To answer the question, the arithmetic averages and the standard deviations were calculated for

each of the questionnaire statements and arranged in descending order according to the arithmetic mean, and the following Table 9 shows that.

The total degree in the previous table indicates that the respondents' attitudes toward the effectiveness of modern teaching strategies in caring for the emotional aspect were high, as the arithmetic means of the total score was (2.57) and the total standard deviation was (0.38). The phrase (makes the student enjoy studying the educational material) came to the forefront of these expressions. While the lowest order of the phrase was (the student feels comfortable and happy during learning. It is clear evidence that using modern teaching strategies helped in meeting the students' desires and tendencies, increasing their production, and enabling them to be more efficient and integrated.

TABLE 9  
THE ARITHMETIC MEANS AND STANDARD DEVIATIONS OF THE QUESTIONNAIRE STATEMENTS RELATED TO THE FIELD OF INTEREST IN THE EMOTIONAL OFFENDER

#	The effectiveness of modern teaching strategies in paying attention to the emotional aspect	The arithmetic mean	Standard deviation	Level
1	It enables the student to enjoy studying the educational material.	2.72	0.46	High
2	It increases the student's self-confidence while learning.	2.67	0.49	High
3	It enables the student to enjoy sharing with other students the teaching material subjects.	2.56	0.62	High
4	It enables the student to feel alive while learning.	2.44	0.70	High
5	It enables the student to feel comfortable and happy while learning.	2.44	0.51	High
	Total degree	2.57	0.38	High

TABLE 10  
THE ARITHMETIC MEANS AND STANDARD DEVIATIONS OF THE QUESTIONNAIRE STATEMENTS RELATED TO THE FIELD OF THINKING SKILLS.

#	The effectiveness of modern teaching strategies in developing thinking skills.	The arithmetic mean	Standard deviation	Level
1	It helps the student to create and innovate.	2.89	0.32	High
2	It evokes the student's thinking about the educational material	2.89	0.32	High
3	It gives the student an opportunity to express his ideas freely.	2.89	0.32	High
4	It enables the student to acquire thinking skills, such as the skill of deduction.	2.78	0.43	High
5	It enables the student to distinguish between right and wrong.	2.72	0.46	High
	Total degree	2.83	0.18	High

(4) Fourth: How effective are modern teaching strategies in developing thinking skills from the instructor's viewpoint? To answer the question, the arithmetic averages and the standard deviations were calculated for each of the questionnaire statements and arranged in descending order according to the degrees of the arithmetic mean, and Table 10 shows that.

The total degree presented in the previous table indicates that the respondents' attitudes toward the effectiveness of modern teaching strategies in developing thinking skills were high, as the arithmetic means of the overall score was (2.83) and the total standard deviation was (0.18). The phrase (helps the student to create and innovate) came to the forefront of these phrases as the highest, while the lowest phrase was (that helps the student distinguish between right and wrong), and this indicates that modern teaching strategies help students to think and be creative in a big way, outweighs what happens traditionally, because the student here became a participant in the learning process and is no longer just a recipient.

(5) Fifth: How effective are modern teaching strategies in improving the environment from the instructor's viewpoint? To answer the question, the arithmetic averages and the standard deviations were calculated for each of the questionnaire statements and arranged in descending order according to the degrees of the arithmetic mean, and the following Table 11 shows that:

TABLE 11  
THE ARITHMETIC MEANS AND STANDARD DEVIATIONS OF THE QUESTIONNAIRE STATEMENTS RELATED TO THE FIELD OF ENVIRONMENTAL IMPROVEMENT.

#	Effective are modern teaching strategies in improving the environment.	The arithmetic mean	Standard deviation	Level
1	It helps the student to enjoy free movement.	2.61	0.61	High
2	Help the student to use the tools and materials easily.	2.61	0.61	High
3	It helps to distribute students better.	2.50	0.71	High
	Total degree	2.57	0.51	High

The total degree presented in the previous table indicates that the respondents' attitudes toward the effectiveness of modern teaching strategies in improving the environment were high. The arithmetic means of the overall degree was (2.57), and the total standard deviation was (0.51). The phrase (helps the student enjoy the freed movement) came in the forefront of these phrases as the highest order, while the lowest phrases were: the phrase (helps to distribute students better). This confirms the importance of modern teaching strategies that call for students to abandon the regular boring and traditional sessions, to organize in groups, and work in a team spirit, cooperating, discussing, arguing, and learning about peer methods; all of this leads to the maintains the acquired knowledge and skills for the longest possible time.

(6) Sixth: How effective are modern teaching strategies in appropriately managing the lecture from the viewpoint of the instructor? To answer the question, the arithmetic averages and the standard deviations were calculated for each of the questionnaire statements and arranged in descending order according to the scores of the arithmetic mean, and the following Table 12 shows that.

The total score presented in table 10 indicates that the respondents' attitudes towards the effectiveness of modern teaching strategies in appropriately managing the lecture were high, as the arithmetic means of the total degree was (2.6) and the total standard deviation was (0.49) and that the highest degrees were for the phrase (motivating the student to attend the lecture regularly and at the specified time), while the lowest degrees for the phrase (make the role of an instructor observer

and follower to the student's work). The researcher comforted so that teaching strategies application has an active role in accustoming the student to time management and skills, and this gives him a sense of responsibility and his main role in the learning process and what comes with it.

(7) Seventh: How effective are modern teaching strategies in student interaction within the lecture from the instructor's viewpoint? To answer the question, the arithmetic averages and the standard deviations were calculated for each of the questionnaire statements and arranged in descending order according to the scores of the arithmetic mean, and the following Table 13 shows that:

TABLE 12  
THE ARITHMETIC AVERAGES AND STANDARD DEVIATIONS OF THE STATEMENTS RELATED TO THE FIELD OF MANAGING THE LECTURE IN AN APPROPRIATE MANNER.

#	Effective are modern teaching strategies in managing the lecture properly.	The arithmetic mean	Standard deviation	Level
1	It motivates the student to attend the lecture regularly and on time.	2.78	0.55	High
2	It organizes participation in activities properly.	2.67	0.59	High
3	It helps the student to respect time.	2.67	0.59	High
4	It teaches the student how to deal with others during the lecture.	2.50	0.62	High
5	It makes the instructor's role to observe and follow the student's work.	2.39	0.61	High
	Total degree	2.60	0.49	High

TABLE 13  
THE ARITHMETIC MEANS AND STANDARD DEVIATIONS OF THE QUESTIONNAIRE STATEMENTS RELATED TO THE FIELD OF STUDENT INTERACTION WITHIN THE LECTURER.

#	Effectiveness are modern teaching strategies in student's interaction within the lecture.	The arithmetic mean	Standard deviation	Level
1	It increases student interaction to participate in the lecture.	2.61	0.61	High
2	It increases student focus on what is going on in the lecture.	2.61	0.50	High
3	It enlivens the spirit of competition with other students	2.56	0.62	High
4	It helps the student to rely on himself.	2.44	0.62	High
	Total degree	2.56	0.44	High

The total degree presented in the previous table indicates that the respondents' attitudes toward the effectiveness of modern teaching strategies in student interaction inside the lecture were high, as the arithmetic means of the total score was (2.56) and the total standard deviation of (0.44), and the phrase (student interaction increases by participating in the lecture), while the lowest degrees were for the phrase (help the student to rely on himself). The researcher attributes the result to the great role of modern strategies in teaching a design course in building self-confidence and self-esteem, and the student holds his responsibility for learning and increasing motivation to learn. Undoubtedly, this aspect justifies the need for such modern strategies in teaching such courses.

To answer the second question, which states: "Are there differences in the effectiveness of using modern teaching strategies in developing student skills from the viewpoint of instructors due to (workplace, academic qualification, experience, and specialization)? And the following Tables 14-17 show that.

From the table 14, it is obvious that there are no statistically significant differences at the level of significance ( $\alpha = 0.05$ ) in the effectiveness of using modern teaching strategies in developing student skills due to the workplace variable in all fields of research (the level of significance is more significant than 0.05 for all fields), and thus concludes acceptance of the previous null hypothesis.

TABLE 14  
RESULTS TO EXAMINE THE DIFFERENCES IN THE EFFECTIVENESS OF USING MODERN TEACHING STRATEGIES DUE TO THE WORKPLACE VARIABLE.

The field	Work Place/University	The arithmetic mean	Standard deviation	Calculated T value	Freedom degree	level of statistical significance
<i>Developing cognitive skills</i>	Polytechnic	2.69	0.20	1.918	16	0.073
	Birzeit	2.87	0.21			
<i>Developing social skills</i>	Polytechnic	2.40	0.45	1.499	16	0.153
	Birzeit	2.71	0.41			
<i>Paying attention to the emotional aspect.</i>	Polytechnic	2.54	0.47	0.207	16	0.838
	Birzeit	2.58	0.33			
<i>Developing thinking skills</i>	Polytechnic	2.74	0.22	1.757	16	0.098
	Birzeit	2.89	0.14			
<i>Improving the environment</i>	Polytechnic	2.38	0.59	1.311	16	0.208
	Birzeit	2.70	0.43			
<i>Managing the lecture properly.</i>	Polytechnic	2.80	0.37	1.407	16	0.178
	Birzeit	2.47	0.54			
<i>The student's interaction in lecture.</i>	Polytechnic	2.71	0.39	1.234	16	0.235
	Birzeit	2.45	0.46			
<i>Total degree</i>	Polytechnic	2.62	0.28	0.457	16	0.654
	Birzeit	2.67	0.21			

TABLE 15  
RESULTS TO EXAMINE THE DIFFERENCES IN THE EFFECTIVENESS OF USING MODERN TEACHING STRATEGIES DUE TO THE SCIENTIFIC QUALIFICATION VARIABLE.

The Field	Academic Qualification	The Arithmetic Mean	Standard Deviation	Calculated T Value	Freedom Degree	Level Of Statistical Significance
<i>Developing cognitive skills</i>	Master	2.71	0.25	-1.86	16	0.081
	PhD	2.89	0.15			
<i>Developing social skills</i>	Master	2.36	0.40	-2.59	16	0.020
	PhD	2.82	0.37			
<i>Paying attention to the emotional ..</i>	Master	2.42	0.39	-1.75	16	0.106
	PhD	2.71	0.32			
<i>Developing thinking skills</i>	Master	2.80	0.20	-0.76	16	0.461
	PhD	2.87	0.17			
<i>Improving the environment</i>	Master	2.56	0.47	-0.15	16	0.883
	PhD	2.59	0.57			
<i>Managing the lecture properly</i>	Master	2.42	0.63	-1.59	16	0.131
	PhD	2.78	0.23			
<i>The student's interaction in..</i>	Master	2.42	0.40	-1.37	16	0.190
	PhD	2.69	0.46			
<i>Total degree</i>	Master	2.53	0.24	-2.64	16	0.018
	PhD	2.78	0.15			

TABLE 16  
RESULTS TO EXAMINE THE DIFFERENCES IN THE EFFECTIVENESS OF USING MODERN TEACHING STRATEGIES DUE TO THE SPECIALIZATION VARIABLE.

The Field	Specialization	The Arithmetic Mean	Standard Deviation	Calculated T Value	Freedom Degree	Level Of Statistical Significance
<i>Developing cognitive skills</i>	Architecture	2.78	0.21	-0.474	16	0.642
	City planning	2.84	0.26			
<i>Developing social skills</i>	Architecture	2.49	0.44	-1.557	16	0.139
	City planning	2.84	0.36			
<i>Paying attention to the emotional aspect.</i>	Architecture	2.54	0.44	-0.500	16	0.624
	City planning	2.64	0.09			
<i>Developing thinking skills</i>	Architecture	2.83	0.20	-0.092	16	0.928
	City planning	2.84	0.17			
<i>Improving the environment</i>	Architecture	2.54	0.50	-0.468	16	0.646
	City planning	2.67	0.58			
<i>Managing the lecture properly.</i>	Architecture	2.51	0.56	-1.302	16	0.211
	City planning	2.84	0.09			
<i>The student's interaction in lecture.</i>	Architecture	2.44	0.43	-1.879	16	0.079
	City planning	2.85	0.34			
<i>Total degree</i>	Architecture	2.60	0.24	-1.671	16	0.114
	City planning	2.79	0.14			

From the table 15, it is clear that there are no statistically significant differences at the level of significance ( $\alpha = 0.05$ ) in the effectiveness of using modern teaching strategies in developing student skills due to the scientific qualification variable in all areas of research except in the field of developing social skills and the overall degree (the level of significance is greater from 0.05 for all fields except the fields of social skills development and total degree). Thus it is concluded that the previous null hypothesis is accepted in all fields except in the fields of social skills development and the total degree, where the null hypothesis is rejected in both fields. With regard to the field of developing social skills, it is clear that the differences were in favor of academic qualification (Ph.D.) compared to scientific qualification (Master). With regard to the overall degree, it becomes clear that the differences were in favor of academic qualification (Ph.D.) compared to academic qualification (Master).

From the table 16, it is clear that there are no statistically significant differences at the level of significance ( $\alpha = 0.05$ ) in the effectiveness of using modern teaching strategies in

developing student skills due to the variable of specialization in all areas of research (the level of significance is greater than 0.05 for all fields). Thus it follows the acceptance of the previous null hypothesis.

In order to examine the hypothesis due to the variable of experience years' number, the arithmetic means, standard deviations, and the results of the single-variance analysis test were extracted, as is evident from the following Table 17.

From the table 17, it is obvious that there are no statistically significant differences at the level of significance ( $\alpha = 0.05$ ) in the effectiveness of using modern teaching strategies in developing student skills due to the variable of the number of experience years in all fields (the level of significance is greater than 0.05 in all fields). Thus It concludes acceptance of the previous null hypothesis. The following Table 18 shows numbers, arithmetic averages, and standard deviations of the effectiveness of using modern teaching strategies in developing student skills from the instructors' viewpoint according to the number of experience years' variable.

TABLE 16  
RESULTS TO EXAMINE THE DIFFERENCES IN THE EFFECTIVENESS OF USING MODERN TEACHING STRATEGIES  
DUE TO THE SPECIALIZATION VARIABLE.

The Field	Specialization	The Arithmetic Mean	Standard Deviation	Calculated T Value	Freedom Degree	Level Of Statistical Significance
<i>Developing cognitive skills</i>	Architecture	2.78	0.21	-0.474	16	0.642
	City planning	2.84	0.26			
<i>Developing social skills</i>	Architecture	2.49	0.44	-1.557	16	0.139
	City planning	2.84	0.36			
<i>Paying attention to the emotional aspect.</i>	Architecture	2.54	0.44	-0.500	16	0.624
	City planning	2.64	0.09			
<i>Developing thinking skills</i>	Architecture	2.83	0.20	-0.092	16	0.928
	City planning	2.84	0.17			
<i>Improving the environment</i>	Architecture	2.54	0.50	-0.468	16	0.646
	City planning	2.67	0.58			
<i>Managing the lecture properly.</i>	Architecture	2.51	0.56	-1.302	16	0.211
	City planning	2.84	0.09			
<i>The student's interaction in lecture.</i>	Architecture	2.44	0.43	-1.879	16	0.079
	City planning	2.85	0.34			
<i>Total degree</i>	Architecture	2.60	0.24	-1.671	16	0.114
	City planning	2.79	0.14			

TABLE 17  
THE RESULTS OF THE SINGLE-VARIANCE ANALYSIS TEST TO EXAMINE THE DIFFERENCES  
DUE TO THE VARIABLE NUMBER OF EXPERIENCE YEARS.

The Field	Variation Source	Squares Sum	Freedom Degrees	Squares Average	Calculated F Value	Level Of Statistical Significance
<i>Developing cognitive skills</i>	Among groups	0.036	2	0.018	0.353	0.708
	Within groups	0.764	15	0.051		
<i>Developing social skills</i>	Among groups	0.331	2	0.165	0.831	0.455
	Within groups	2.987	15	0.199		
<i>Paying attention to the emotional aspect.</i>	Among groups	0.049	2	0.025	0.155	0.858
	Within groups	2.371	15	0.158		
<i>Developing thinking skills</i>	Among groups	0.001	2	0.000	0.013	0.987
	Within groups	0.579	15	0.039		
<i>Improving the environment</i>	Among groups	0.179	2	0.090	0.318	0.732
	Within groups	4.222	15	0.281		
<i>Managing the lecture properly.</i>	Among groups	1.156	2	0.578	2.886	0.087
	Within groups	3.004	15	0.200		
<i>The student's interaction in lecture.</i>	Among groups	0.302	2	0.151	0.751	0.489
	Within groups	3.017	15	0.201		
<i>Total degree</i>	Among groups	0.058	2	0.029	0.499	0.617
	Within groups	0.868	15	0.058		
	Total	0.926	17			

TABLE 18  
THE NUMBERS, ARITHMETIC MEANS AND STANDARD DEVIATIONS ACCORDING TO THE NUMBER OF YEARS  
OF EXPERIENCE VARIABLE.

The Field	Experience Years' Number	No.	The Arithmetic Mean	Standard Deviations
<i>Developing cognitive skills</i>	Less than 10 years	5	2.84	0.26
	From 10 to 15 years	5	2.84	0.26
	More than 15 years	8	2.75	0.18
<i>Developing social skills</i>	Less than 10 years	5	2.56	0.41
	From 10 to 15 years	5	2.80	0.45
	More than 15 years	8	2.48	0.47
<i>Paying attention to the emotional aspect.</i>	Less than 10 years	5	2.52	0.30
	From 10 to 15 years	5	2.52	0.44
	More than 15 years	8	2.63	0.42
<i>Developing thinking skills</i>	Less than 10 years	5	2.84	0.17
	From 10 to 15 years	5	2.84	0.26
	More than 15 years	8	2.83	0.17
<i>Improving the environment</i>	Less than 10 years	5	2.53	0.56
	From 10 to 15 years	5	2.73	0.43
	More than 15 years	8	2.50	0.56
<i>Managing the lecture properly.</i>	Less than 10 years	5	2.24	0.74
	From 10 to 15 years	5	2.56	0.36
	More than 15 years	8	2.85	0.21
<i>The student's interaction in lecture.</i>	Less than 10 years	5	2.35	0.42
	From 10 to 15 years	5	2.60	0.55
	More than 15 years	8	2.66	0.40
<i>Total degree</i>	Less than 10 years	5	2.56	0.20
	From 10 to 15 years	5	2.70	0.34
	More than 15 years	8	2.68	0.18
	Total	18	2.65	0.23

## VI. CONCLUSIONS

This study shows that the respondents' opinions about the effectiveness of modern teaching strategies in developing student skills were high. These high trends and approval were eliminated in that they raised the student's perception of the educational material, increased his understanding of the educational material, provided opportunities for building relationships with other students, and encouraged the student to accept the ideas of others, enabling him to enjoy studying the educational material. In addition to that, it increases the student's self-confidence during learning, enables him to enjoy sharing the subjects of the educational material with others, and helps him to create and innovate; it also works to stimulate his thinking, enjoy free movement, and stimulate the student to attend the lecture regularly and on time, and focus on what is going on in the lecture. This is confirmed by previous studies that dealt with the effectiveness of modern teaching strategies in engineering education in general and architectural education in particular. There is no statistically significant effectiveness of modern teaching strategies in developing student skills from the viewpoint of instructors due to (workplace, academic qualification, number of experience years, and specialization). It becomes clear that the differences favored academic qualification (Ph.D.) compared to academic qualification (Master) in the fields of social skills development and the total degree.

## VII. RECOMMENDATIONS

Based on the previous results, a set of recommendations were made, which can be summarized as follows: (1) Keeping up with modern teaching strategies because they have a great role in achieving the outputs of architectural education and knowing each strategy's capabilities to develop student's skills to reach the full achievement of the educational process goals. (2) The necessity of directing scientific research to architectural design to study the dimensions of using each strategy to achieve creativity and learning among students in detail. (3) The openness of architecture and architectural teachings to other sciences, such as teaching methodologies, computers, technology, etc.

## AUTHORS CONTRIBUTION

The following summarizes author statement outlining their individual contributions to the paper using the relevant roles:

1. *Shaqour, E. N.*: Data collection and tools, investigation, methodology, and drafting the article.
2. *Almashour, R. T.*: Data analysis and interpretation, Supervision, Critical revision of the article, and final approval of the version to be published.
3. *Hosney, A. A.*: Conception and design of work, Literature review collection, data interpretation, supervision, and critical revision of the article

The corresponding author is responsible for ensuring that the descriptions are accurate and agreed by all authors.

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**Title Arabic:**

قياس فاعلية استخدام استراتيجيات التدريس الحديثة في تطوير مهارات  
طلبة استوديو التصميم المعماري  
دراسة حالة الضفة الغربية- فلسطين

**Arabic Abstract:**

هدف هذا البحث الكشف عن مدى فاعلية استخدام استراتيجيات التدريس الحديثة في تدريس مقرر التصميم المعماري لتنمية مهارات الطلبة من وجهة نظر عضو هيئة التدريس. وتم تطبيق البحث على جامعتين من ضمن ثلاثة في الضفة الغربية - فلسطين تقوم بتدريس العمارة، وتكونت عينة البحث من (١٨) عضو هيئة تدريس تم اختيارهم بطريقة القصدية من مجتمع البحث. ولتحقيق الأهداف استخدم المنهج الوصفي التحليلي المعتمد على الاستبانة التي تم التحقق من صدقها وثباتها. وقد أشارت النتائج إلى أن الدرجة الكلية لقياس مدى فاعلية استراتيجيات التدريس الحديثة في تنمية مهارات الطالب كانت مرتفعة، كما أشارت بأن جميع درجات استخدام الاستراتيجيات مرتفعة وأعلى الاستراتيجيات استخداماً هي استراتيجيات تنمية مهارات التفكير، يليها استراتيجيات تنمية المهارات المعرفية، وأخيراً استراتيجيات تحسين البيئة. كما أظهرت النتائج عدم وجود فروق ذات دلالة إحصائية في مدى فاعلية استخدام استراتيجيات التدريس الحديثة في تنمية مهارات الطلبة تعزى لمتغير (مكان العمل، التخصص، عدد سنوات الخبرة، المؤهل)، ووجود فروق ذات دلالة إحصائية تعزى لمتغير المؤهل العلمي لصالح الدكتوراه في مجال تنمية المهارات الاجتماعية.