

Hidden architecture with epidemics in Egypt

Case-study on Execution designs curriculum at the Higher Institute of Engineering at 5th settlement.

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Abstract

Purpose– The aim of the research is to achieve a standard curriculum for the selection and application of the most appropriate methods of education to make the educational system more sustainable in the teaching of curricula, especially those that support the concept of Hidden architecture. The study deals in particular with operational design courses in the context of emergency crises in general, and to realize the basic concepts, knowledge and skills of the curriculum because of its impact on the end product, which is the feasible integrated project, in an effort to avoid the problems that have arisen.

Design/methodology/approach– The research paper relies on the extrapolation method to identify the knowledge and skills of the classification of rapporteurs through the data on the Educational List of Comparators (Execution Designs1- Execution Designs2), The research then follows the comparative analytical approach by putting in place the criteria for the selection of study samples and then analyzing these projects in accordance with several criteria agreed upon by implementing consultants in the process of arriving at a project that can be implemented in practice, which are taught through the curriculum and educational objectives and in accordance with the regulations and evaluation of the above-mentioned courses, and by reaching the ratios achieved by each project for the same student By assessing the above criteria and arriving at a model to meet the requirements of imaginary architecture courses in Egypt to select the most appropriate teaching methods and apply them to make the educational system more sustainable in teaching operational design courses if crisis persists or similar crises occur.

Findings – The research problem lies in the versatility of teaching methods without making sure that they are effective and have a positive impact on the realization of the concepts and skills adopted under certain epidemics, including the Corona crisis, in order to realize the basic concepts, knowledge and skills of the curriculum, especially those that support the concept of Hidden architecture. These include architectural design courses and Execution Design Courses, the application of which reflects the project for each course.

Originality/value– This research was set out to purpose teaching Execution Design Courses is to give students a set of concepts, knowledge and skills that will enable them to produce a project that can be implemented in the job market. In the face of the new Corona crisis, the transformation of distance education and the multiplicity of teaching methods, we are skeptical about the effectiveness of the knowledge, and skills gained by the student and sufficient to achieve the desired goal of these decisions.

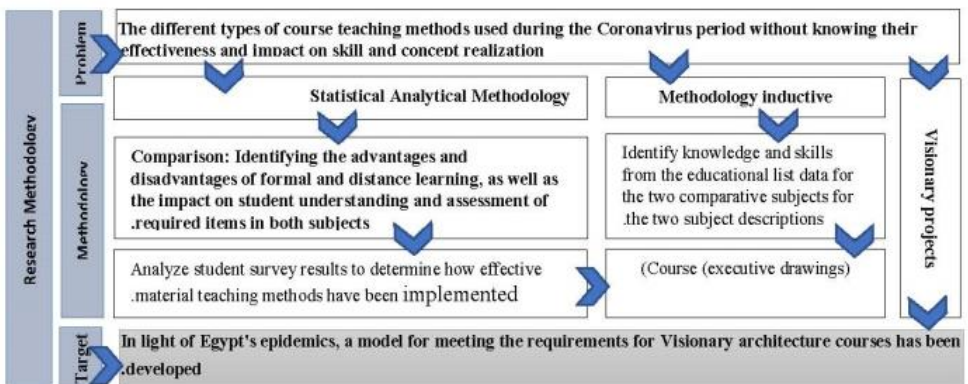
Keywords: Hidden architecture - Distance Education - Execution Design Course - Architectural Education – Curriculum.

Paper Type: Research Paper

1. Introduction

Hidden architecture is the attempt to emulate the student of architecture for post-graduate life and to coexist with the demands of the labor market. This is achieved through the student's co-existence with a virtual project at different stages, leading up to the final stage of the project, which can be implemented. That is contrary to what we're going through this period after the new corona virus. And with a strong call for social distancing, Universities have been closed for various periods of time around the world, and access to alternative options such as distance education remains as a means of reducing university time (Sahu, 2020). The impact on education was likely to be more devastating in countries where learning outcomes were low and resilience is weak. And because there are different scenarios; many assume that the spread of the corona virus will occur in the form of waves, which means that strategic plans must be developed that will facilitate adaptation once a similar crisis occurs and minimize its negative effects. Enabling education officials and policymakers to use this as an opportunity to develop new learning models that can reach all (Al-Harbi, 2011), prepare for emergencies and make the education system more resilient to crises. Hence the importance of the subject of research, where the problem of research lies in the multiplicity of educational methods without making sure that they are effective and have a positive impact on the realization of the concepts and skills adopted in the context of certain epidemics, including the Corona crisis. In order to achieve the basic concepts, knowledge and skills of the curriculum in general and in particular the courses that used to have direct contact between the student and the teacher (Report, QS, 2020), the course contains a final project in which it is evaluated on the knowledge and skills achieved that are essential to the curriculum. The research was therefore concerned with a comparative position between the two executive design curricula of the same class, one taught under regular normal conditions, the direct contact between student and teacher, and the other taught under corona conditions and distance learning to identify strengths and weaknesses in both cases, with a view to making the education system more resilient in teaching operational design courses in emergency crises. In order to arrive at the above figure1.

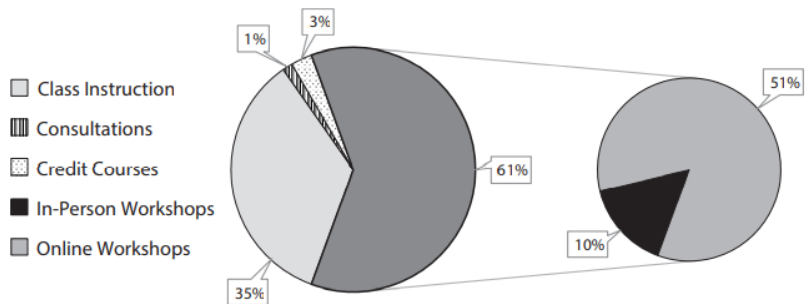
Figure 1.
Research
Methodology, by
Author



2. The concept of Hidden architecture

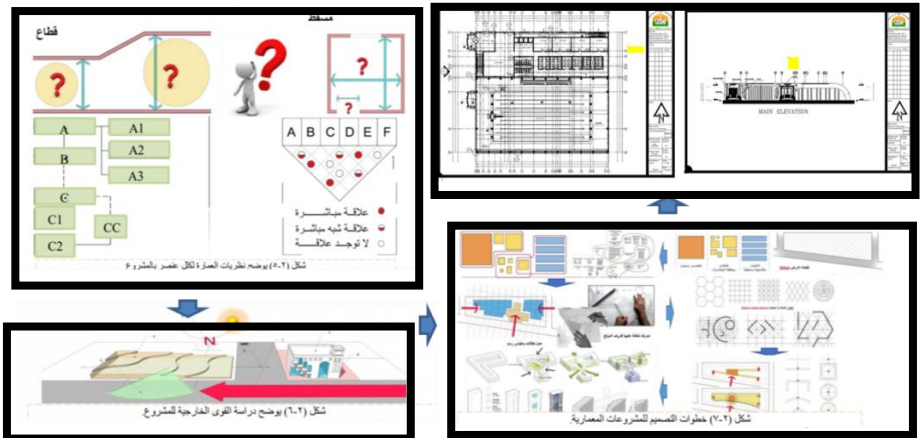
Hidden architecture appears in several images during the educational process as illustrated in Figure. 1 And Figure. 2, the most famous of these are education through information technology and various modern technologies, which facilitate the educational process in the architectural field. In other words, they are curricula and projects that take place during different levels of education in architectural education, since they take place at the educational levels and are not on the ground (operational at the site) before being implemented (caffer, Carolyn; Halpern, Rebecca; Galoozis, Elizabeth;, 2020).

Figure 1. illustrates one of the applications of Hidden architecture in providing information proficiency instructions to a variety of students in a college.



Source: Fig.1 (caffer, Carolyn; Halpern, Rebecca; Galoozis, Elizabeth;, 2020)

Figure 2. illustrates one of the applications of Hidden architecture from the design process to the implementation graphics of the project.



Source: Fig.2 (Taha, 2021)

1. Selection of analytical study samples:

In the academic year 2020/2021, for the same class, in two consecutive semesters in Egypt, and then for the selection of 1940s as models for visionary projects for students for two study rapporteurs from the design courses of the Third Division of the Architecture Section of the Higher Institute of Engineering at the Fifth settlement in new Cairo; One was taught under regular normal conditions, direct contact between the student and the teacher, and the other was taught under corona and distance learning conditions, in accordance with specific controls developed by researchers. A student opinion survey was also conducted to identify strengths and

weaknesses in both cases in support of the study and access to the proposed standard curriculum.

3-1 Criteria for selecting study models:

- The criteria for sample projects selected from students (student, project, teacher) are specified as shown in Table 1.
- The research sought to ensure that there were neutral elements that were not included in the comparative points of the selected samples, including the different method of drawing used in view of the regulations applied during each semester, either by hand or using architectural drawing programs, and the different type of project as determined by the study list for each term, and as explained in the following table 1:

| Elements | Student | Project | Doctor |
|-----------|--|---|--|
| Standards | <ul style="list-style-type: none"> -The same student for two semesters in a row. -Choosing a sample of students based on academic guidance and achieving a percentage of distinction in comparison to their peers from the same batch. -During the semester, the student must have completed at least 80% of the project follow-up. - Each student's cumulative grade will have his project analyses and passed the subjects during the previous study stages. | <ul style="list-style-type: none"> -As a general estimate for the project during the semester, the outstanding projects achieved at least 80%. - The project is presented to each student over the course of two semesters. Having the selected sample of students complete the same number of project hours. - Aligning the projects with the Requirement list of the Executive drawings (Tamam, 2016). | <ul style="list-style-type: none"> -Throughout the two semesters, the subject is taught by the same Doctor. |

Table 1. Criteria for the elements of selecting models for the selected sample projects from the students.

Source by the Author

3-2. Reasons for courses selection:

Executive Designs are of great importance in the labor market. They are the most extensive and comprehensive area in the labor market. They are courses that support the concept of Hidden architecture and whose application reflects to its projects, therefore, the courses selected Executive Designs (1.2) from the courses of the Higher Institute of Engineering at the Fifth settlement in new Cairo.

3-3 Data analysis methods:

A comparison has been made between the two courses in many ways to compare them, as shown in table 2, based mainly on the executive project with which all these concepts are fused and the final product of the student's understanding, in order to be able to transform the contents of the curriculum into a set of information, concepts and skills acquired from the Institute's curriculum, which the student must acquire from the subject as a preliminary step. The students' grades will then be analyzed in the two subjects, and through these grades, three models of students' projects will be selected for evaluation according to the project evaluation elements used in the executive design books and consultants in Egypt (Tamam, 2016). With the same three models established during the two subjects, project selection should be in three categories; excellent, medium and weak.

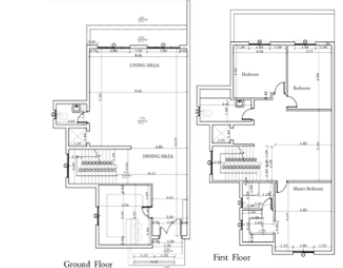
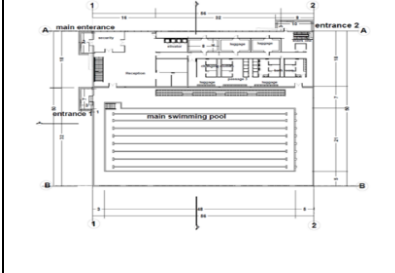
| Subject | Executive Drawings 1 | Executive Drawings 2 |
|---------------------|--|---|
| Level | 4 | 4 |
| Student number | 55 | 48 |
| Semester | First(required for second) | Second |
| List of data points | <ul style="list-style-type: none"> - Introducing students to the basics of executive drawing preparation for construction work, finishes, new mechanical and manual materials, and maintenance work. - Attempting to identify the specific details of the building's elements and finishes (doors - windows - architectural models). - Introduction to executive drawings and their data. - Manually drawing with engineering drawing tools. | <ul style="list-style-type: none"> -preparing drawings for the working designs of an architectural primary project for a student - putting what was learned in previous courses to use - emphasizing construction methods and the use of cutting-edge technology in architectural details and finishing materials - Executive drawings must include sanitary and electrical works with a suitable drawing scale. -Executive drawings are presented using computer programs. |
| Hours | 6 hours (2 theoretical +4 practical) | 6 hours (2 theoretical +4 practical) |
| Type of project | Draw executive drawings for Villa Housing Project | Draw executive drawings for Cover lounge for the pool. |
| Project program | <p>The attached drawing shows the horizontal projection of a residential villa project, which is a one-level building, taking into account the levels attached to the drawing. What is required is the preparation of implementation designs:</p> <ol style="list-style-type: none"> 1- The executive drawings plan, which shows (all structural elements - dimensions - spaces - stairs - openings - finishing tables - and all the necessary information for implementation) for scale 1:50. 2. There are four vertical sections, one of which passes through the main entrance..... scale 1/50 3. The number of elevations (taking into account the use of appropriate materials in elevation for scale 1:50) is four. 4- Lay out.....with a scale of 1/100 | <p>Attached is the horizontal projection of the ground floor of a swimming pool project. The student is required to convert the initial drawings of the project into an executive project.</p> <p>The project consists of a floor and a basement, with a floor level of +0.45 m and a basement level of -3 m to consider:</p> <ol style="list-style-type: none"> 1- Based on the research, select a suitable structural system. 2- The structure should have internal components as well as a variety of distinct finishes (stairs, elevators, floors, ceilings, wall cladding, and furnishings). 3- The floor plan of the ground floor at a scale of 1/100 4- The floor plan of the basement floor at a scale of 1/100 5- section A-A + section B- B on a scale of 1/100 6- The number of 4 facades of a scale 1/100 |
| Project |  <p>Ground Floor</p> <p>First Floor</p> |  <p>main swimming pool</p> <p>entrance 2</p> |

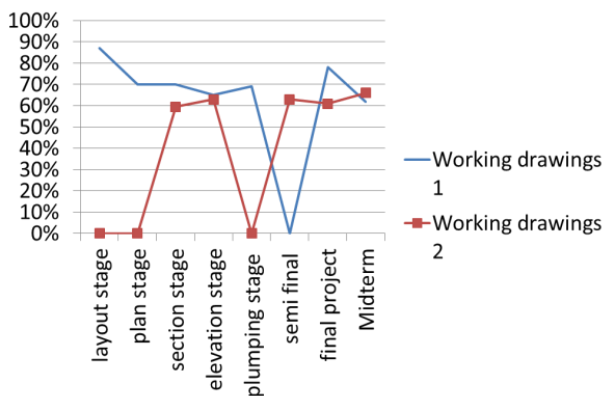
Table 2. A comparison between the two courses from several points of comparison, source by The Author

Table 3. shows that a comparative analysis of the two subjects has been made in terms of the number of students receiving the different ratings at the different delivery stages, which have been determined by the evaluation and studies of the approved executive consultants, From the analysis of student's grades and the total number of each grade, three models of Hidden architecture projects were selected for students as shown in table 4, through the attached results approved by the Higher Institute of Engineering for teaching, The selection took into account the excellent, medium and weak models to be evaluated according to the project evaluation elements of the execution designs books and consultants in Egypt.

| Evaluate | First semester | | | | | | | | | Second semester | | | | | | |
|-----------|----------------|-------------|---------------|-----------------|----------------|------------------|---------------|---------------|----------|-----------------|-------------|---------------|-----------------|------------|---------------|----------|
| | Number | Plans stage | Section stage | Elevation stage | Plumping stage | Electrical stage | Lay out stage | Final project | Mid term | Number | Plans stage | Section stage | Elevation stage | Semi Frnal | Final project | Mid term |
| Excellent | 1 | 84% | 95% | 95% | 95% | 90% | 100% | 97% | 90% | 4 | 75% | 65% | 85% | 72% | 75% | 84% |
| V. Good | 6 | 82% | 87% | 91% | 78% | 80% | 100% | 85% | 77% | 4 | 72% | 71% | 87% | 70% | 80% | 69% |
| Good | 12 | 69% | 84% | 62% | 69% | 72% | 92% | 86% | 67% | 3 | 60% | 65% | 67% | 80% | 83% | 81% |
| Approved | 20 | 74% | 57% | 56% | 67% | 70% | 88% | 78% | 47% | 20 | 59% | 55% | 53% | 57% | 73% | 56% |
| failed | 16 | 42% | 25% | 19% | 34% | 30% | 56% | 43% | 30% | 17 | 26% | 42% | 23% | 36% | 49% | 41% |
| All | 55 | 70% | 70% | 65% | 69% | 68% | 87% | 78% | 62% | 48 | 58% | 59% | 63% | 63% | 61% | 66% |

Table 3. A comparative analysis between the two semesters, Source by The Author

Figure 3. Shows A comparative analysis between the two semesters



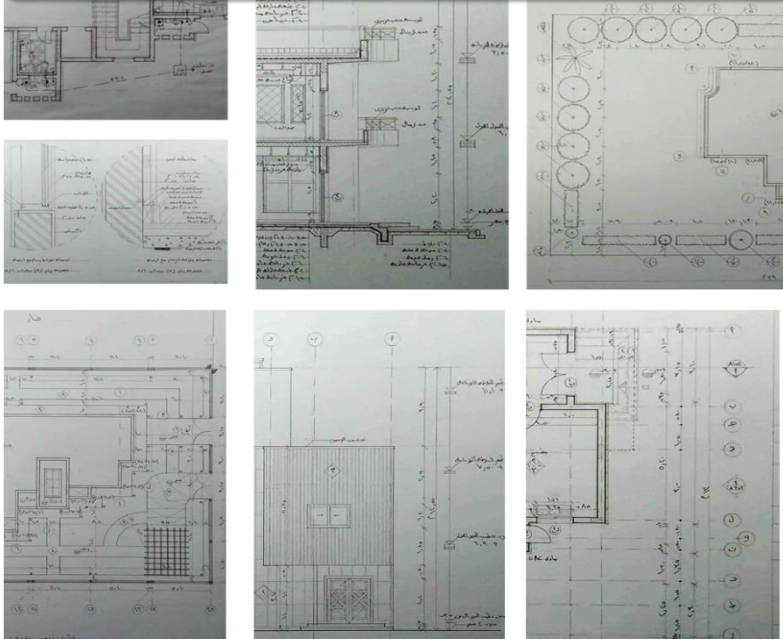
| Class – students name | GPA | Hours | First semester evaluate | Second semester evaluate |
|-----------------------|------------------|-------|-------------------------|--------------------------|
| Unique | Hussein Tarek | 144 | A+ | A- |
| Medium | Omar Abd Elnaser | 144 | B | B |
| Weak | Mena Allah Reda | 144 | C+ | C |

Table 4. Choosing three models of imaginary architecture projects for students, Source, by The Author

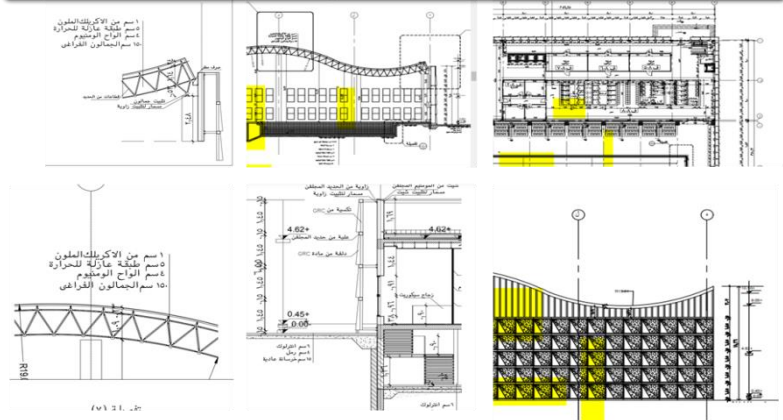
The examples were analyzed through several requirements for evaluating implementation projects, as shown in the table5. Below. (Plans - Sections - Elevations - Electrical – plumbing- Layout - Other Requirements), During each requirement there are several evaluation elements through which the project receives a score of 100%, According to the rate of achievement in the selected model project, through the attached chart, the extent to which the project has achieved the criteria to be achieved for each implementation element of the architectural projects can be explained (classroom, 2020).

3-3 -1 First: The Unique Category Project:

Excellent Project - First semester



Excellent Project – second semester



| Phases of the Project - Assessment Components | | Number of Rating Points | First semester. | | Second semester. | |
|--|---|-------------------------|-----------------|------------|------------------|------------|
| | | | achieving | Percentage | achieving | Percentage |
| Project Data Phase | Data for the overall project | 9 | 2 | 22% | 2 | 22% |
| | Description and Owners | | | | | |
| | Engineering office. | | | | | |
| | Associate Engineers and Offices | | | | | |
| | Project key | | | | | |
| | Participating Contractors | | | | | |
| | Table of Components | | | | | |
| | Illustrations and Binoculars | | | | | |
| | Implementation recommendations in detail | | | | | |
| Lay out Phase | Create final surfaces by drawing blocks and shaping them. | 25 | 16 | 64% | 0 | 0% |
| | Components of the building | | | | | |
| | Work on site coordination | | | | | |
| | Exterior fences and supporting walls | | | | | |
| | Road names in the immediate surroundings | | | | | |
| | Widths of Walkers and their Location | | | | | |
| | Existing Trees' Locations | | | | | |
| | Site for local service. | | | | | |
| | north direction and arrow | | | | | |
| | The main axes | | | | | |
| | Ownership Limits and Dimensions | | | | | |
| | The starting point. | | | | | |
| | The main level | | | | | |
| | Different levels at the site | | | | | |
| | Placement of sections and elevations | | | | | |
| | Placement of details | | | | | |
| | Painting's table and its contents | | | | | |
| | Table of symbols and conventions | | | | | |
| Table for valves | | | | | | |
| Site Item Finishing Table | | | | | | |
| A map depicting the project's location | | | | | | |
| Current building locations | | | | | | |
| secondary building dimensions and supplements | | | | | | |
| Dimensions of lay out | | | | | | |
| Building Dimensions in Relation to Ground Limits | | | | | | |
| Phase of plumbing | Lay out | 6 | 2 | 33% | 0 | 0% |
| | plans | | | | | |
| | Details of plumbing | | | | | |
| | Diagrams for Recharging Water | | | | | |
| | Diagrams of drainage grids | | | | | |
| Details and supplements | | | | | | |
| Phase of electrical | Lay out | 5 | 1 | 20% | 0 | 0% |
| | plans | | | | | |
| | Plan of roof | | | | | |
| | Diagrams of electrical networks | | | | | |
| | Details on Electrical Feeding painting | | | | | |
| other | Complementary Project Details | - | | | | |
| | Illustrative details | | | | | |
| | Descriptive elements of the project | | | | | |

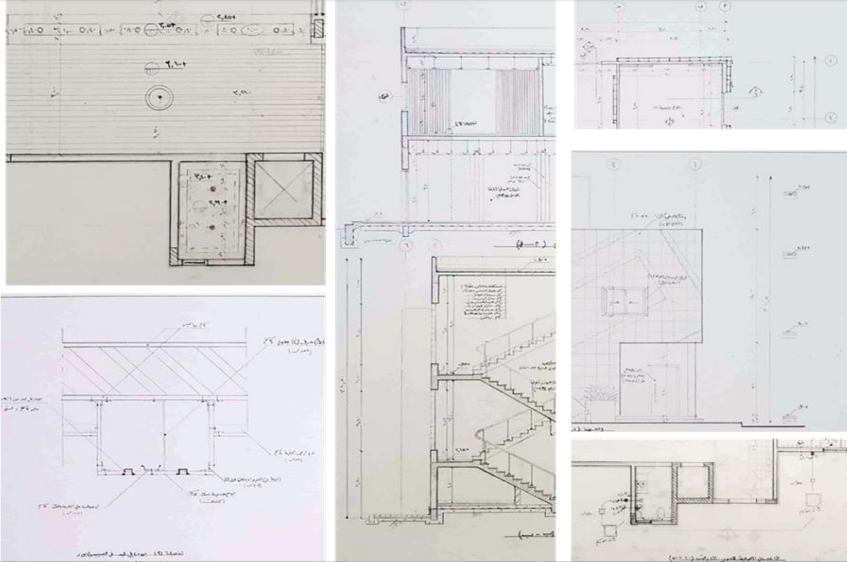
requirements for the project

| Phases of the Project - Assessment Components | | Number of Rating Points | First semester. | | Second semester. | |
|---|---|-------------------------|-----------------|------------|------------------|------------|
| | | | achieving | Percentage | achieving | Percentage |
| requirements for the project | Plans Phase | 19 | 19 | 100% | 15% | 79% |
| | Axes | | | | | |
| | Walls | | | | | |
| | Openings | | | | | |
| | Doors and Windows | | | | | |
| | Stairs | | | | | |
| | Columns | | | | | |
| | Bathroom Furniture | | | | | |
| | Interior Dimension | | | | | |
| | Lines External Dimension | | | | | |
| | Lines Circles Axes | | | | | |
| | Facade Symbols | | | | | |
| | Symbols and locations of sectors | | | | | |
| | Calculation of internal and external dimensions | | | | | |
| | Names of spaces | | | | | |
| | Table of Finishing | | | | | |
| | data of painting | | | | | |
| | North arrow | | | | | |
| | Finishing aids | | | | | |
| | Symbols and locations of sectors | | | | | |
| | Section Phase | 16 | 16 | 100% | 12 | 75% |
| | The floor line and the levels of the floors | | | | | |
| | the axes and their circles | | | | | |
| | the thickness of the walls, | | | | | |
| | The elevation of section from plan | | | | | |
| | the projection of the stairs | | | | | |
| | the details of the openings and the method of opening | | | | | |
| | Internal and external levels | | | | | |
| | Internal measurement lines | | | | | |
| | External measurement lines | | | | | |
| | hatching according to the construction materials | | | | | |
| | Detail Places and Symbols | | | | | |
| | Place name ,Symbols and locations of sectors | | | | | |
| | write flooring layers, | | | | | |
| | write name of section | | | | | |
| | plate frame and data table | | | | | |
| details of arches | | | | | | |
| Elevation Phase | 14 | 14 | 100% | 11 | 79% | |
| Land line and floor levels | | | | | | |
| Axes and their circles | | | | | | |
| Projection of elevation | | | | | | |
| Projection of openings and their details | | | | | | |
| Projection of stairs | | | | | | |
| Details of arches on the elevation | | | | | | |
| sections Places and Symbols | | | | | | |
| External measurement lines | | | | | | |
| Detail Places and Symbols | | | | | | |
| plate frame and data table | | | | | | |
| Symbols of finishing | | | | | | |
| Table of Finishing | | | | | | |
| Elevation name | | | | | | |
| plate frame and data table | | | | | | |

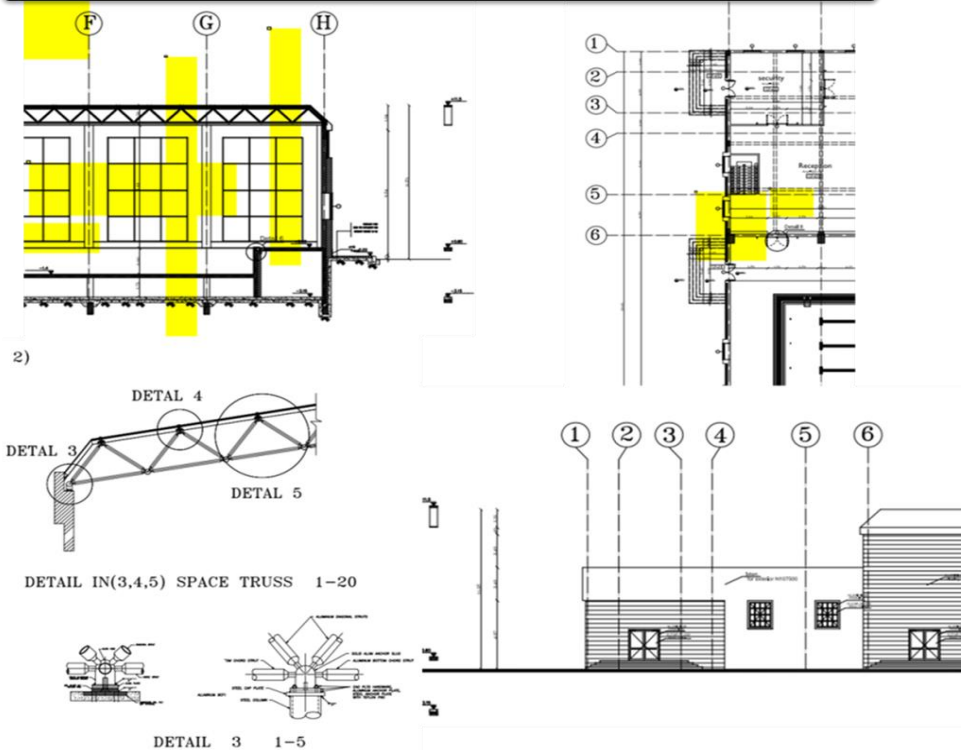
Table 5. analyzed through several requirements for evaluating implementation projects, source by The Author

3-3-2 Second: the Medium category project (classroom, 2020)

Medium Project – first semester



Medium Project - Second semester



| Phases of the Project - Assessment Components | | Number of Rating Points | First semester. | | Second semester. | |
|--|---|-------------------------|-----------------|------------|------------------|------------|
| | | | achieving | Percentage | achieving | Percentage |
| Project Data Phase | Data for the overall project | 9 | 5 | 55% | 2 | 22% |
| | Description and Owners | | | | | |
| | Engineering office. | | | | | |
| | Associate Engineers and Offices | | | | | |
| | Project key | | | | | |
| | Participating Contractors | | | | | |
| | Table of Components | | | | | |
| | Illustrations and Binoculars | | | | | |
| Implementation recommendations in detail | | | | | | |
| Lay out Phase | Create final surfaces by drawing blocks and shaping them. | 25 | 20 | 80% | 0 | 0% |
| | Components of the building | | | | | |
| | Work on site coordination | | | | | |
| | Exterior fences and supporting walls | | | | | |
| | Road names in the immediate surroundings | | | | | |
| | Widths of Walkers and their Location | | | | | |
| | Existing Trees' Locations | | | | | |
| | Site for local service. | | | | | |
| | north direction and arrow | | | | | |
| | The main axes | | | | | |
| | Ownership Limits and Dimensions | | | | | |
| | The starting point. | | | | | |
| | The main level | | | | | |
| | Different levels at the site | | | | | |
| | Placement of sections and elevations | | | | | |
| | Placement of details | | | | | |
| | Painting's table and its contents | | | | | |
| | Table of symbols and conventions | | | | | |
| | Table for valves | | | | | |
| | Site Item Finishing Table | | | | | |
| A map depicting the project's location | | | | | | |
| Current building locations | | | | | | |
| secondary building dimensions and supplements | | | | | | |
| Dimensions of lay out | | | | | | |
| Building Dimensions in Relation to Ground Limits | | | | | | |
| Phase of plumbing | Lay out | 6 | 4 | 66% | 0 | 0% |
| | plans | | | | | |
| | Details of plumbing | | | | | |
| | Diagrams for Recharging Water | | | | | |
| | Diagrams of drainage grids | | | | | |
| Details and supplements | | | | | | |
| Phase of electrical | Lay out | 5 | 4 | 80% | 0 | 0% |
| | plans | | | | | |
| | Plan of roof | | | | | |
| | Diagrams of electrical networks | | | | | |
| | Details on Electrical Feeding painting | | | | | |
| other | Complementary Project Details | - | | | | |
| | Illustrative details | | | | | |
| | Descriptive elements of the project | | | | | |

requirements for the project

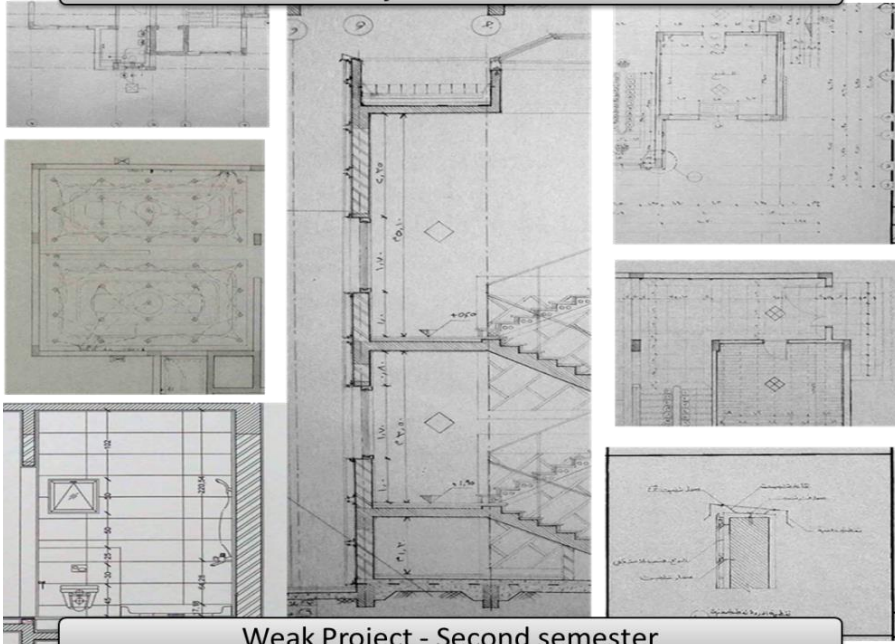
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| Phases of the Project - Assessment Components | | Number of Rating Points | First semester. | | Second semester. | | |
|---|---|---|-----------------|------------|------------------|------------|-----|
| | | | achieving | Percentage | achieving | Percentage | |
| requirements for the project | plans Phase | 19 | 19 | 100% | 15 | 78% | |
| | Axes | | | | | | |
| | Walls | | | | | | |
| | Openings | | | | | | |
| | Doors and Windows | | | | | | |
| | Stairs | | | | | | |
| | Columns | | | | | | |
| | Bathroom Furniture | | | | | | |
| | Interior Dimension | | | | | | |
| | Lines External Dimension | | | | | | |
| | Lines Circles Axes | | | | | | |
| | Facade Symbols | | | | | | |
| | Symbols and locations of sectors | | | | | | |
| | Calculation of internal and external dimensions | | | | | | |
| | Names of spaces | | | | | | |
| | Table of Finishing | | | | | | |
| | data of painting | | | | | | |
| | North arrow | | | | | | |
| | Finishing aids | | | | | | |
| | Symbols and locations of sectors | | | | | | |
| | Section Phase | The floor line and the levels of the floors | 16 | 14 | 87% | 10 | 62% |
| | | the axes and their circles | | | | | |
| | | the thickness of the walls, | | | | | |
| | | The elevation of section from plan | | | | | |
| | | the projection of the stairs | | | | | |
| | | the details of the openings and the method of opening | | | | | |
| | | Internal and external levels | | | | | |
| | | Internal measurement lines | | | | | |
| | | External measurement lines | | | | | |
| | | hatching according to the construction materials | | | | | |
| | | Detail Places and Symbols | | | | | |
| | | Place name ,Symbols and locations of sectors | | | | | |
| | | write flooring layers, | | | | | |
| | | write name of section | | | | | |
| | plate frame and data table | | | | | | |
| | details of arches | | | | | | |
| | elevation Phase | Land line and floor levels | 14 | 10 | 71% | 8 | 57% |
| | | Axes and their circles | | | | | |
| | | Projection of elevation | | | | | |
| Projection of openings and their details | | | | | | | |
| Projection of stairs | | | | | | | |
| Details of arches on the elevation | | | | | | | |
| sections Places and Symbols | | | | | | | |
| External measurement lines | | | | | | | |
| Detail Places and Symbols | | | | | | | |
| plate frame and data table | | | | | | | |
| Symbols of finishing | | | | | | | |
| Table of Finishing | | | | | | | |
| Elevation name | | | | | | | |
| plate frame and data table | | | | | | | |

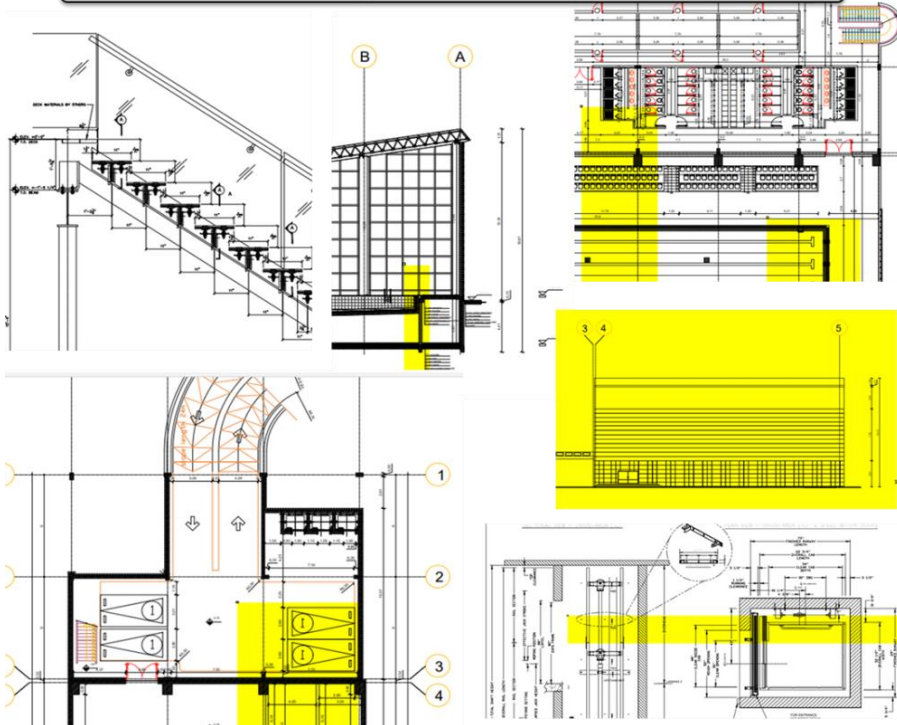
Table 6. Analyzed through several requirements for evaluating implementation projects, source by The Author

3-3-3 Third: The Weak category Project (classroom, 2020)

Weak Project – first semester



Weak Project - Second semester



| Phases of the Project - Assessment Components | | Number of Rating Points | First semester. | | Second semester. | |
|--|---|-------------------------|-----------------|------------|------------------|------------|
| | | | achieving | Percentage | achieving | Percentage |
| Project Data Phase | Data for the overall project | 9 | 0 | 0% | 2 | 22% |
| | Description and Owners Engineering office. | | | | | |
| | Associate Engineers and Offices | | | | | |
| | Project key | | | | | |
| | Participating Contractors | | | | | |
| | Table of Components | | | | | |
| | Illustrations and Binoculars | | | | | |
| | Implementation recommendations in detail | | | | | |
| | | | | | | |
| Lay out: Phase | Create final surfaces by drawing blocks and shaping them. | 25 | 12 | 48% | 0 | 0% |
| | Components of the building | | | | | |
| | Work on site coordination | | | | | |
| | Exterior fences and supporting walls | | | | | |
| | Road names in the immediate surroundings | | | | | |
| | Widths of Walkers and their Location | | | | | |
| | Existing Trees' Locations | | | | | |
| | Site for local service. | | | | | |
| | north direction and arrow | | | | | |
| | The main axes | | | | | |
| | Ownership Limits and Dimensions | | | | | |
| | The starting point. | | | | | |
| | The main level | | | | | |
| | Different levels at the site | | | | | |
| | Placement of sections and elevations | | | | | |
| | Placement of details | | | | | |
| | Painting's table and its contents | | | | | |
| | Table of symbols and conventions | | | | | |
| | Table for valves | | | | | |
| | Site Item Finishing Table | | | | | |
| A map depicting the project's location | | | | | | |
| Current building locations | | | | | | |
| secondary building dimensions and supplements | | | | | | |
| Dimensions of lay out | | | | | | |
| Building Dimensions in Relation to Ground Limits | | | | | | |
| Phase of plumbing | Lay out plans | 6 | 5 | 83% | 0 | 0% |
| | Details of plumbing | | | | | |
| | Diagrams for Recharging Water | | | | | |
| | Diagrams of drainage grids | | | | | |
| | Details and supplements | | | | | |
| Phase of electrical | Lay out plans | 5 | 3 | 6% | 0 | 0% |
| | Plan of roof | | | | | |
| | Diagrams of electrical networks | | | | | |
| | Details on Electrical Feeding painting | | | | | |
| other | Complementary Project Details | - | | | | |
| | Illustrative details | | | | | |
| | Descriptive elements of the project | | | | | |

| Phases of the Project - Assessment Components | | Number of Rating Points | First semester. | | Second semester. | | |
|---|----------------------------------|---|-----------------|------------|------------------|------------|-----|
| | | | achieving | Percentage | achieving | Percentage | |
| requirements for the project | Plans Phase | Axes | 19 | 14 | 73% | 12 | 63% |
| | | Walls | | | | | |
| | | Openings | | | | | |
| | | Doors and Windows | | | | | |
| | | Stairs | | | | | |
| | | Columns | | | | | |
| | | Bathroom Furniture | | | | | |
| | | Interior Dimension | | | | | |
| | | Lines External Dimension | | | | | |
| | | Lines Circles Axes | | | | | |
| | | Facade Symbols | | | | | |
| | | Symbols and locations of sectors | | | | | |
| | | Calculation of internal and external dimensions | | | | | |
| | | Names of spaces | | | | | |
| | | Table of Finishing | | | | | |
| | | data of painting | | | | | |
| | North arrow | | | | | | |
| | Finishing aids | | | | | | |
| | Symbols and locations of sectors | | | | | | |
| | Section Phase | The floor line and the levels of the floors | 16 | 14 | 87% | 8 | 50% |
| | | the axes and their circles | | | | | |
| | | the thickness of the walls, | | | | | |
| | | The elevation of section from plan | | | | | |
| | | the projection of the stairs | | | | | |
| | | the details of the openings and the method of opening | | | | | |
| | | internal and external levels | | | | | |
| | | Internal measurement lines | | | | | |
| | | External measurement lines | | | | | |
| | | hatching according to the construction materials | | | | | |
| | | Detail Places and Symbols | | | | | |
| | | Place name ,Symbols and locations of sectors | | | | | |
| | | write flooring layers, | | | | | |
| | | write name of section | | | | | |
| | | plate frame and data table | | | | | |
| | | details of arches | | | | | |
| | elevation Phase | Land line and floor levels | 14 | 5 | 35% | 8 | 57% |
| Axes and their circles | | | | | | | |
| Projection of elevation | | | | | | | |
| Projection of openings and their details | | | | | | | |
| Projection of stairs | | | | | | | |
| Details of arches on the elevation | | | | | | | |
| sections Places and Symbols | | | | | | | |
| External measurement lines | | | | | | | |
| Detail Places and Symbols | | | | | | | |
| plate frame and data table | | | | | | | |
| Symbols of finishing | | | | | | | |
| Table of Finishing | | | | | | | |
| Elevation name | | | | | | | |
| plate frame and data table | | | | | | | |

Table 7. Analyzed through several requirements for evaluating implementation projects, source by The Author

2. Questionnaire participants

A questionnaire was created for students who submitted and studied the subjects and targeted all the students, but the questions were asked to determine the desire of each of them for the kind of education that makes it easier for them to understand the objectives and requirements of the courses. It was represented in the name of the project - their grade during the two courses -their desire for the way in which they would like to be taught- the best way to understand every requirement of the project, whether by attending, distance learning or combining

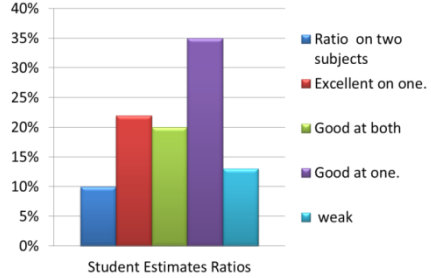
them (the hybrid), left room for them to express their opinion on the reasons for their choice and proposals for improvement.

3. Analysis of questionnaire data and conclusions

From the analysis of the questionnaire presented to the students, it was clear that:

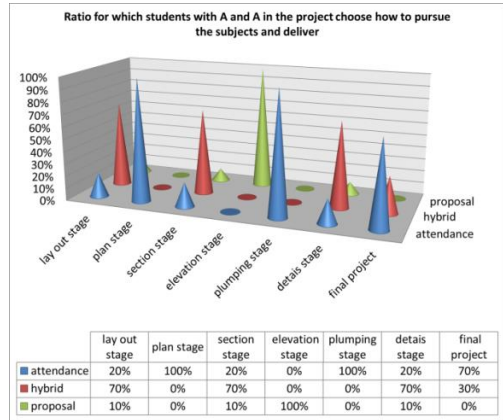
5-1 Students participating in the questionnaire had their estimate ratios in subjects such as:

- 10% had received Excellent in both courses.
- 22% had received Excellent in one of them.
- 35% had received Good in one of them.
- 20% had received Good in both courses.
- 13% had received Weak in both courses.

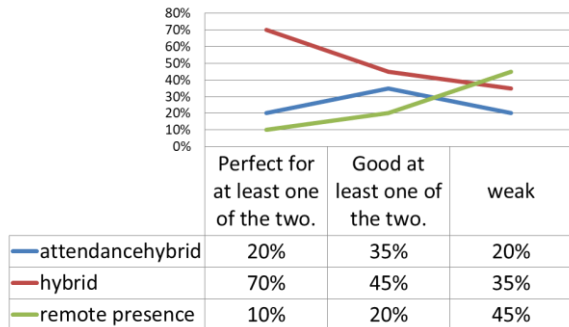


5-2 As a result of the views of the students participating in the questionnaire on the best way to teach the subjects, it was clear that:

- The percentage of students with an excellent or good grades in one course at least choice for a hybrid education was the highest 70%, 45% respectively, than the other choices for a teaching method. The reason of the students chose this previous class, as explained in the questionnaire, is that the hybrid system contributes to easier and faster communication of information as a result of attendance, with scientific material available for reference when needed after understanding it.
- The percentage of students with a weak grade in one course or both of them for distance education was 45% higher than other choices. As explained in the questionnaire, the reason for students' choice of this previous ratio is that the online system allows scientific material to be available when needed and returned to it again.



Percentage of students choosing the best system to teach subjects



5-3 By focusing on the representative segment of good and excellent recipients of the two articles, or one of them in the questionnaire, it was clear that:

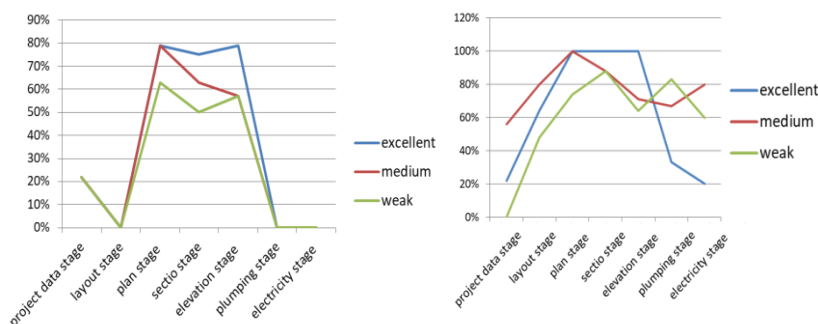
- The Layout phase, 70% of students chose to be a hybrid.
- The plans phase, 100% of students chose to attend.
- The sections phases, 70% of students chose to be a hybrid.
- The Elevations phases, 100% of students chose to be distance education (online).
- The electrical and plumbing phases 100% of students chose to attend.
- The details and shop drawings phases 70% of students chose to be a hybrid.
- The Final project phase 70% chose to attend.

6. Analysis of the results of the research hypothesis

Through the analysis and evaluation of the three models, the following were observed as shown in figure 5 below:

- The study demonstrated the need to integrate different educational methods during some of the later stages of the project in order to achieve the goal of the curriculum in the context of an epidemic.
- We could rely on distance education in the final stages of the project to complete it in a way that meets the desired educational goals.
- The need to communicate directly with the student during the initial stages of the project because of the importance it represents in communicating information directly between the student and their teacher.
- Although some ratios are close at some different stages of the project, close contact with the student has proved to be the achievement of outstanding, unconventional, creative projects.
- Reliance on computer software and engineering software, such as AutoCAD, Rivet and others, has undoubtedly contributed to access to projects with high ratings, affecting the final results of the project in general and leading to their convergence during the two semesters.
- Turns out that there was a general decline in the students' technical and creative levels in the Execution designs project during the semester that relied entirely on the distance education system.
- It was found that there was a rise in the level of students in the executive designs during the regular academic term, and it became clear that direct communication had a positive impact on the general level of the projects in general.

Figure 5.



7. Developing a proposed model to meet the requirements for Hidden architecture in the context of epidemics in Egypt:

In order to arrive at the proposed model, a three-phase concept has been developed, the first stage being the elements of the imagined implementation project with its usual final phases, as mentioned earlier (Project induction phase, Layout phase, plans phase, sections phase, Elevations phase, details phase, electrical work phase, plumbing work phase, and final project phase); The second stage is the nature of the presence of the students (full attendance, remote presence, hybrid), The third phase includes a proposal to accommodate each stage of the project in a manner appropriate to it, in accordance with which the mechanism of researchers has arrived at through selected study samples or through the student questionnaire to achieve a model that is most appropriate in the teaching of each phase of the Hidden executive project and the achievement of its objectives and concepts as shows in table 8.

| The Characteristics of Presence - Phases of Project Delivery | | Lay out stage | | | Plans stage | | | section stage | | | elevation stage | | | plumbing stage | | | electrical stage | | | Final project | | | |
|---|---|---------------|----------|----------|-------------|----------|----------|---------------|----------|----------|-----------------|----------|----------|----------------|----------|----------|------------------|----------|----------|---------------|----------|--|--|
| | | lecture | Stakeout | Delivery | lecture | Stakeout | Delivery | lecture | Stakeout | Delivery | lecture | Stakeout | Delivery | lecture | Stakeout | Delivery | lecture | Stakeout | Delivery | Stakeout | Delivery | | |
| It 's a good priority to have. | Attendance | | | | | | | | | | | | | | | | | | | | | | |
| | Remote presence | | | | | | | | | | | | | | | | | | | | | | |
| | Hybrid | | | | | | | | | | | | | | | | | | | | | | |
| Proposals for improvement based on the highest priority for presence. | recording a lecture from a distance education program | | | | | | | | | | | | | | | | | | | | | | |
| | Make more time available for student-Doctor communication. | | | | | | | | | | | | | | | | | | | | | | |
| | Attendance of payment in two stages to achieve spacing | | | | | | | | | | | | | | | | | | | | | | |
| | Programs to support distance education are becoming more well-known and are being used more frequently. | | | | | | | | | | | | | | | | | | | | | | |
| | Knowledge of the software used to load the project in high quality | | | | | | | | | | | | | | | | | | | | | | |
| | Provision of cutting-edge electronic devices to aid in distance learning | | | | | | | | | | | | | | | | | | | | | | |
| It's a good priority to have. | | | | | | | | | | | | | | | | | | | | | | | |
| Attendance | | | | | | | | | | | | | | | | | | | | | | | |
| Remote presence | | | | | | | | | | | | | | | | | | | | | | | |
| Hybrid | | | | | | | | | | | | | | | | | | | | | | | |
| Proposal | | | | | | | | | | | | | | | | | | | | | | | |

table 8.shows Proposed model of the standard approach analytical study, Source by the author

8. Recommendations:

From the findings of the study, a variety of recommendations can be reached:

8-1 At the level of architectural curriculum developers:

- The need to start developing proposed models that represent alternative study plans in case of emergency epidemics to suit emergency conditions, so that an educational system can adapt to achieve the desired educational goals.
- The need to make use of the idea of hybrid education and to use it in modules to maximize its use in the curricula that allow it to do so, especially with the fact that it already exists, and to provide it with the

opportunity to have a sustainable education as education expands to the entire world.

- The need to employ distance education to provide sufficient teaching space for applied subjects at the expense of theoretical materials in order to maximize its benefits under exceptional circumstances as an emergency epidemic.
- Establishing a mechanism that allows submitting proposals for how to evaluate students in light of the application of an educational system different from the usual educational system, with the challenges of distance education under emergency circumstances.

8-2 At the level of architectural education institutions in Egypt, Requiring educational institutions to:

- The need to pay attention to distance education using modern technical means, as it provides exceptional opportunities for students to continue studying without stopping their educational career because of an epidemic such as the new Corona epidemic, with the use of it in proportion to the curriculum that allows it to bring scientific content closer to the student's information.
- The need to employ the technology of education, including distance education programs of various kinds, to help reduce the cost of education while providing the scientific material under any exceptional circumstances.
- The need to pay attention to the information technology infrastructure of university educational institutions in order to address such emergency conditions.

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