Wood materials are adopted as a strategic component of project-based learning for interior design students (Applied experiment)

Assit. Prof. Dr. Zakaria Sayed Saeed Ibraheem
Dean of the Faculty of Engineering, Arab University for Science and Technology
Supervisor of the Department of Interior Design
Kingdom of Saudi Arabia
zeeka2008@gmail.com

Introduction:

Modern global trends of educational systems have become focused on education based on the outputs, which verify the actual experiences and practices of students, and is considered one of the basic requirements for university education. The educational systems in the Kingdom of Saudi Arabia have taken directions, the most important of which is the need to adopt academic curricula such as academic principles of this academic approach with all its requirements, tools and equipment, including projects, as it develops students in their specialization and works to develop students' skills and knowledge. Learning in a wider scope outside the walls of theoretical classrooms has become imperative in the present era, so we had to develop and enhance student participation, and this has come from the integrated learning approach that connects what the student studies in classrooms with the real reality of the actual work environment and learning. The project-based is characterized by its organized steps that achieve the goals of learning by exerting effort and perseverance, the labor market needs a graduate who can interact with the work team and find quick and successful solutions to problems.

Key words:

Project education - wood materials - experimentation - observation - phenomena – model.

Research problem:

• Many of the higher education institutions in some of our Arab societies overlook the importance of professional practice or training and field practical application for university students, although it is one of the basic conditions for obtaining a university degree.

Research importance:

• The education strategy in developed countries depends on the importance of training and practical application in practical specialties, including reliance on learning through projects.

Research aim:

One of the aims of the research is to be able to design a mini project and pass the student in all its aspects and all stages until completion of its implementation.

The role of the university as an educational institution in the development of society:

Education has now become interdependent, observing phenomena, and confirming the correlation between the two parts of learning, the theoretical and the applied side, which are confirmed by the pillars of the modern educational process, as the application is the cornerstone of completing learning goals and raising capabilities and increasing skills, so students' participation in applied business is a form of experiential learning, and in Saudi society it is

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considered a relatively new procedure. The goal of going through these experiences is not to transform students into technicians or craftsmen, but the goal is for students to pass actual applied experiences to learn about materials, machines and tools, operating methods and stages of assembly and suppression and finishing, and to experience the working-side climate in an easy and harmonious manner. The speed of technological changes will require the educational system to prepare individuals who are abler to adapt to the new changes in the labor market, and are able to acquire new skills, so that they can keep pace with the changes in the current era, and are compatible with an era of continuous development and renewal of innovative technology.

University education earns holistic culture and skills:

The university offers knowledge, and experiences, all of which are interlinked links within the holistic culture project, and the university does not gain its title as an educational institution as it provides education that follows another education, but its role is to touch the senses of creativity in its students, so it undertakes and refines them, knowledge no longer runs through a narrow channel but rather it has becomes more spread and interconnected, the university is no longer a channel for transferring theoretical knowledge only, but it is also a source for the integration of experiences, and a base for forming generations who bear the burdens of technological development and progress, as skills development is an important means of developing knowledge, innovation and invention, and thanks to this some countries have managed to achieve the scientific progress, the required technological development and economic growth.

Built-in learning:

It has been proven that combined learning that includes both theoretical and applied sides has achieved great success among students in many countries that have taken these steps in the curricula of study, as this method seeks truth in the stage of application and observation, and it is not sufficient to derive it from contemplation in theoretical courses, the theoretical side cares to gain knowledge and improve understanding, while the applied side is concerned with practice, reality and problem solving, and the application project represents the processes through which field work is practiced using a set of foundations, with the aim of helping the student to acquire brain knowledge. Roll, field experience, technical skills, as well as to modify the attributes, personality and behaviors of students and gives a high level of positive feeling, and satisfaction towards the profession, and creates a sense of love towards work.

Preparing students for professional practice:

Coexistence in the applied work environment raises students' abilities by transferring many technical skills and experiences, so that this contributes greatly to the student's professional growth, through the link between theoretical knowledge and practical application, one of the most important reasons that lead to the graduates 'capabilities being overlooked is that many institutions of higher education in some of our Arab societies don't rely on the importance of professional practice or practical field training for university students during their academic studies, in various practical disciplines, this reality gives students an opportunity to deal with various pressures that they may face and be exposed to when engaging in the labor market.

Project-based learning:

The Kingdom of Saudi Arabia has approved new systems of university education in the era of transformation that the Kingdom is witnessing, and in light of the Kingdom's vision to be developed until the year 2030, traditional teaching methods no longer meet the requirements of this transformation, and are no longer able to prepare students for the new era, hence the recent trends in teaching methods, they demand attention in the project-based learning method, which is the used method in many developed countries in education.

Advantages of project-based learning:

• The student forms the focus of the educational process instead of the teacher, as he/she selects a project and implements it under the supervision of the teacher.

• This method works to prepare students outside the walls of the university, so that what they have learned in theory translates into a tangible reality and encourages them to work and produce.

Project implementation phase:

At this stage, the theoretical side represented in the steps of the project plan is translated into a tangible reality, whereby students at this stage implement these steps according to the project plan set under the supervision of a faculty member and his/her directives, with students adhering to all the steps of the project plan and not deviating from them unless conditions warrant that. Planning for the project begins first with the classrooms with ideas about the project, and a full explanation of what is required of students to prepare the full study and the proposed preliminary drawings for each model, then the process of dividing the students into groups to start developing their concepts supported by the drawings.

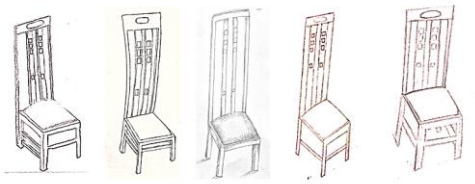
Discovering the reality of woody materials in the applicable work environment:

The student studies the properties and capabilities of the material to reach a greater understanding that help them to adapt it to fit the design he/she put in place, and to make it more powerful in expression and clarification, and this will only come by conducting experiments in a natural environment with the presence of multiple materials and technologies, through which he/she can take advantage of the different characteristics of various wooden materials , and uses them according to the project realization needs. Wood ores are not bound by a specific method or method of formation due to their flexibility, but rather depend on the ability of the person using them and the extent of their innovative capabilities. Consequently, the general properties of wood differ according to the proportions of these components, and of course these properties affect the structural, aesthetic, and functional capabilities of the different woods. As for use, the properties of wood vary and vary because it is a plant material that grows and the time of growth varies from one type to the other.

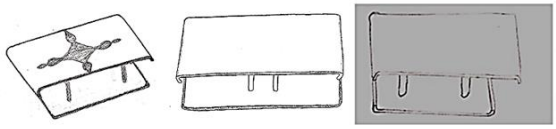
Sketches stage:

Through it, the students made many graphical models according to the previous directions, which were constantly modified until they have reached the stage of stability on the following forms of models, where each group made more than one sketch for one work, and it was as follows as shown below:

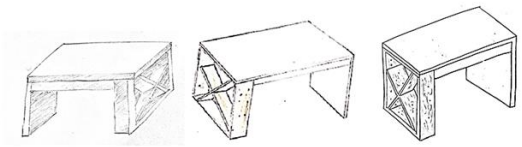
Students' sketches:



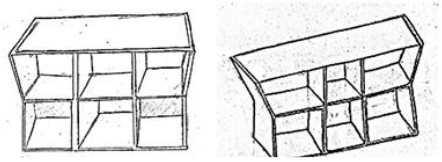
It shows a set of models that students drew for the required chair.



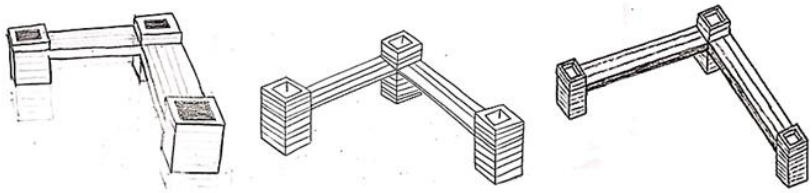
Shows the sketches of students that they drew for a small table.



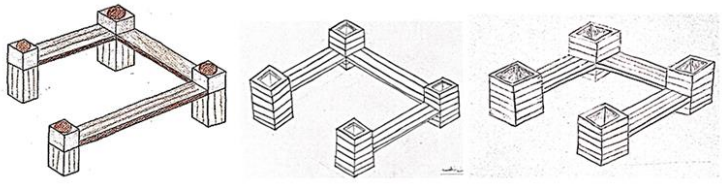
Some ideas that students put forward to design an office



Demonstrates student sketches for a two-seat office idea

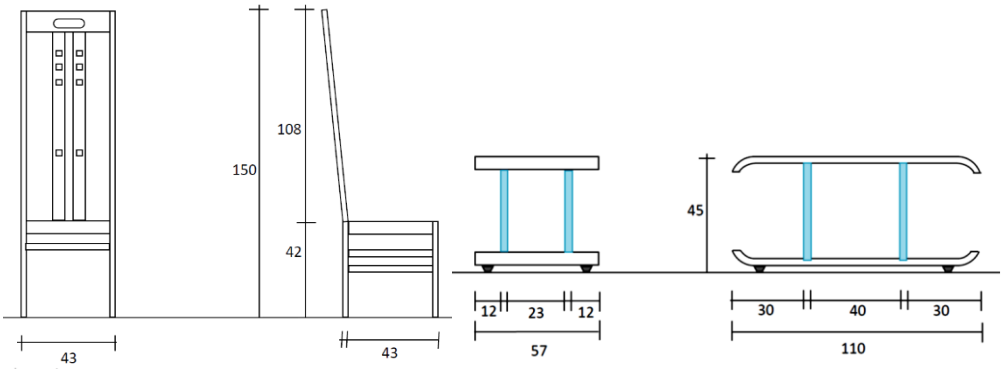


(Figure 5) illustrates student ideas for a two-seater seat unit and contains spaces for flower beds



Student sketches clarify required proposal for U-shaped triple seat unit

The stage of drawings with the executive measurements and materials used for each unit of the project works and methods of implementation:



(Figure 7) shows the drawings and executive sizes of the chair and the small table.

Suggested materials:

Beech wood, natural and manufactured flat panels and black wood have been chosen, as an easy to implement and flexible finishing element, the technological processes used in implementation are the click and tongue method.

The implementation phase of the project units:

This stage started with several visits to the industrial zone in Jeddah, which included stores selling wood to identify the different types of wood, then frequent visits to some furniture workshops and factories, with the aim of providing students with an opportunity to learn about the nature of work within these facilities, operating methods and viewing equipment and machinery, methods and manufacturing methods, with the beginning of implementation, the necessary quantities of wood have been purchased for all models, and implementation procedures have begun.

While visiting a workshop and seeing some wood cutting and wiping machines.

The stage of displaying the project units in the college hall:

It is the final stage in which the project works appear in their final form after finishing and transferring them to the college building, and the following pictures show them:

Student projects that have been implemented.

Results:

• Explained through the project that most students were happy with the experience, and that they contributed greatly to changing concepts and helped them to verify and ensure many aspects of specialization they were missing or unaware of, and that the experience contributed effectively to improving their level.

• It was confirmed that linking the theoretical course with a practical project that contributes to the formation of the students' thinking and preparing them for future practice of the profession, and is the basis for working in industrial institutions, as well as supervising implementation.

Recommendation:

• Universities, as educational organizations, should be concerned with spreading learning through projects, as it is the reality that emphasizes theoretical and practical aspects of education.

• The idea of learning through projects is considered one of the most effective elements in the educational process as curriculum plans coincide among the theoretical teaching stages and the stages of practical application.

• Linking specialization to a broad policy that targets the requirements of the labor market, which verifies the effectiveness of traffic through experimenting with projects, and identifying developments in modern materials and technology.

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