

RESEARCH ARTICLE

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Design and development workshop interior design and furniture section

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I. Introduction

Self management is one of the modern concepts that play a positive role in properly organizing one's life assisting him/her to deal with the community where he/she lives. This concept is more productive in relation to the individual's ability to strengthen and promote himself/herself. This means that the skill of self management is considered a vital factor that assists in achieving academic and social success (Minzer, 2008).

Yo(2007) believes in the importance of utmost benefit of the skills that help the individual to achieve a great deal of his goals towards business development. Ducheve(2005) thinks that in order to achieve the professional development, particularly for the teacher, the skills that help him to adapt with school, material and social surroundings should be developed, such as self management skills that Frayne & Geringer (2000) believe that it effectively assists the individual in everyday life through trying to abandon undesirable behaviors and carry out hard duties so that the individual can reach his goals.

Undoubtedly that linking theoretical knowledge to application and practical training is a key element in the university education, as practical training is one of the key elements in university education it facilitates understanding basic concepts and skills and consequently gives student the required practical experience that qualifies them to realize professional success in the future. Also, it helps in expanding the relation circle with those members involved in this field.

Also, having advanced in Fra structure helps support research and encourage innovation and creativity. It also helps promote concepts of quality and excellence. Finally, it meets the requirements of industrial development through quality education and training staying within the university's vision to become a leader.

Most university colleges are keen to establish and equip laboratories and workshops linked to scientific specialties. Faculty of Applied Arts, Helwan University is considered a distinctive model in the Middle East region in terms of linking workshops and laboratories to the scientific specialties available at the faculty. This faculty is very old as it was established 175 years ago which gives it a unique stamp in the region.

Training is one of the fields with which programs levels could develop to keep pace with the market requirements, the matter that definitely will reflect on students and facts of training process as whole (Dingle, 2003). If training process in general has to be properly controlled to the correct circle, i.e. Motivation, such control will not be achieved except through scientific vision which is based on observing and analyzing negatively influencing sources putting hand on the causes as well as putting forward scientific suggestions thereto (Stilger, 2002).

On the other hand, reviewing job descriptions of the teaching staff members of the Interior Design & Furniture Department outlines many duties and job responsibilities. The same applies to the labors at carpentry workshops at all job levels. Thus, by cooperation through Scientific Department Board, a work vision for the department shall be developed with the aim to prepare, plan, coordinate and evaluate training programs as well as developing technical reports in relation thereto in addition to supervising technical studies in the field of training.

II. Research Problem

This study is an empirical research for designing and equipping the workshops and labs of Interior Design & Furniture Department, and in this context the research problem is represented in the following questions:

- What are the causes of inadequacy and inefficiency of current work environment?
- What are the reasons for not achieving the optimal utilization of the workplace? Do such reasons differ according to the work environment?
- What is the level of available training? What are the reasons that made training not keeping pace with scientific and technical developments?
- To what extent there is a relation between not observing necessary security and safety procedures and achieving basic training programs for undergraduates?

Scientific answers to these questions are worthwhile, particularly in relation to identification of sources and causes of not achieving training programs, in view of the fact that this constitutes the first step for the proper dealing with such obstacles as well as striving to achieve the efficiency of

organization which will result in reducing the waste of effort, time and money.

III. Research Objectives

In this research, I will try to focus on the best method to develop and equip the experimental laboratory to train university students on basic skills with the aim to prepare efficient engineers and to cope up with the requirements of training programs and plans in order to achieve training qualitative transition, and to utilize spaces optimally as well as developing plans for security and safety, and developing a future vision to apply quality and accreditation system in training. Fortunately, all these issues are part of my professional specialty and expertise for over thirty years.

IV. Research Limits

1. The workshop of Interior Design & Furniture Department at the Faculty of Applied Arts, Helwan University.
2. Human Limits
 - a. Teaching staff members at Interior Design & Furniture Department
 - b. Carpentry workshop workers
 - c. Interior Design & Furniture Department undergraduates

V. Research Methodology

I. Theoretical Study

Since the work nature of the teaching staff members at the department is mainly to keep and protect students from exposure to injuries during training, as well as keeping the apparatus and equipments at the workshops and labs, therefore, this type of training requires a healthy work environment and to keep pace with the procedures and measures adopted in similar colleges in the developed countries. Third and fourth year students are keen on executing scientific and research projects that are connected to laboratories and workshops. Due to the nature of work in workshops and labs and the requirements for dealing with the apparatus, equipments and materials of dangerous nature, therefore, holding guiding courses and workshops is a must to secure good levels of members qualified for the nature of work.

Also, absence of adoption of a clear and continuous system for following up graduates has an adverse impact on curriculum and textbooks of practical training, not developing them to cope up with the requirements of the society and modern technology.

II. Field Study (current situation)

Lack of proper utilization of carpentry workshops spaces and non-observation of the least standards related to safety and security and the

absence of a weekly plan and program for the workshop users is considered a waste of effort, time and money. Also, workers' occupational frustration cases due to working for long hours during the one day, or due to the repetition and smallness of the job required to be finished by the worker resulted in creating a case of negligence and carelessness (Al-Karyoti & Abdul fatah, 1998).

Finally, failure to follow-up the implementation of practical training curriculum due to the absence of guiding, leading, assessment and evaluation, or the lack and weakness of the specialized entities adversely reflected on students and work environment.

III. Analytical Study

Practical training curriculum itself is another source of non-satisfaction and non-acceptance in work by many of the teaching staff members due to the content of the curriculum in terms of work environment. Sometimes is hard and dangerous as it requires working on gangrenous tools, machines, equipments and materials. Accordingly, we conclude that this is one of the causes that lead the department workshops and lab to its current situation.

Also, non-requesting to provide an annual budget to develop and equip carpentry workshops is one of the most reasons that led to the decline of the workshops status.

IV. Empirical Study

Empirical approach is characterized by proving the scientific hypotheses and assumptions through experiment to know the causative relationships or the relations between different phenomena covered by the experiment, as well as predicting and controlling such hypotheses. Empirical approach is different from other research approaches, particularly, deductive approach, in terms that the empirical approach is scientific, subjective. In this study, we developed an empirical design includes all results, their relationships and conditions. This requires the researcher to perform the additional following steps:

1. Selecting a sample represents a certain community (Public Authority for Applied Education & Training (PAAET) in the State of Kuwait. It is an educational institution comprises a number of applied colleges and institutions).
2. Classifying the individuals examined in homogeneous communities.
3. Determining and controlling non-empirical factors, setting the means and requirements related to measuring the results of the experiment and verifying their accuracy.
4. Carrying out pilot tests to complete deficiencies and defects existing in means and requirements or in the empirical design.

5. Setting the place of the experiment and the time for its implementation and duration.
6. Initiating the execution of the experiment.
7. Organizing data and determining its extent in a manner that results in good reporting away from prejudice.

The research applies the experiment in examining and testing a certain hypothesis, which is holding a comparison between two training workshops belonging to training institutions of the Public Authority for Applied Education & Training, identical in all features that could affect performance, i.e. the dependent variable. The study included the corresponding situations that controlled all variables, except work environment (carpentry workshops). The results were astonishing in terms of saving effort, time, money and most importantly, benefiting from practical training curriculum in a manner that suits the requirements of labour market.

Testing depended on controlled observation. Also, all factors that affected the dependent variable. Therefore, the experiment quality exceeded (78%) based on the extent of controls therein. It also depended on previous experience (30) years in the field of practical training, developing and equipping carpentry workshops, in addition to depending on previous studies of the phenomenon and precise analysis of problems.

V. Design

Creating a space for training university students to be linked to a lab is an emphasis on the importance of the theoretical and applied curriculum and practical training. Carpentry building and workshops have been designed in a modern way observing the most important requirements necessary for providing the optimal training to the largest number of students. Also, paying attention to ventilation, lighting and emergency exits standards has a great interest in the proposed design. Moreover, security and safety measures were observed in the design in a manner that provides easy movement and the connection between different space units according to the nature of utilization.

The design takes into account the possible developments in accordance with the available budget, so that the project will be completed within five years. The following tables and drawings show in details the designs, spaces and items of the budget required to be executed.

VI. Recommendations

The development of word-class in frastructure and sources of competitive equipment facilitates the completion of high quality research. This development helps expand central research services. It also helps with providing laboratories with the latest equipment. Finally, it creates a suitable

environment for skilled labor who have the knowledge required for the operation, maintenance and supervision of the equipment (Al-Sanad,2014). In accordance with this reality, we must work at two directions, first is immediate reforms and the second is strategic development as follows:

VI. Immediate Reforms:

There is a set of recommendations that will improve work environment upon implementation, including:

1. Improving training place through performing comprehensive maintenance to lighting and ventilation systems, cleanliness and updating essential explanation means.
 2. It is necessary to perform periodic maintenance to the workshops installations, and to take all actions that make these equipments safe which is regarded as key success elements of training all over the world.
- Anthropometry & Ergonomics (workplace health and safety)
3. Diversification of training activities in order not to be rigid or repetitive through applying a stable training policy.
 4. Rehabilitation of carpentry workshops labors in the manner that agrees with the requirements of safety and security, and to provide them with reward and recognition.
 5. Determining occupational duties to each labor in the carpentry workshop in order to facilitate the process of following-up and accountability in case failure or negligence.

Strategic Development:

This directionis achieved through improving and developing workplace conditions in the carpentry building and workshops through organizational development which is a planned effort and long term activity aims to improve the elements of training. It is managed from the top to increase capacity and create an outstanding climate of application and practical training(French & Wendell, 1974).

1. Calling for rapid provision of a budget to execute the design project even on stages(five years) so that implementation can be commenced at the start of the summer holiday of the year 2016.
2. Planning and preparing practical training curriculum to suit the market requirements of technological development.
3. Due to the nature of the practical training at workshops and the too much assignment and occupational duties of the teaching staff members in the Department, it is necessary to lessen the teaching load of the teaching staff members who are assigned with practical training curriculum.
4. The possibility of increasing the number of the new students admitted to Interior Design &

Furniture Department after completing the full implementation of development project.

5. Controls and standards have to be developed for the workshops users, whether students or labors. A teaching staff member has to be assigned this responsibility.
6. Adopting a clear and continuous system for following up graduates and applying quality and accreditation system in training.

VII. Study Applications

The building was designed to accommodate up to (80) students in the auditorium and up to (46) students in the training workshop. To implement such project at the college site which is packed with students during the school year, we have proposed that we begin implementing during summer break and on stages. Starting from summer (2016) and ending with the end of summer (2020). It would take five years to implement the whole project. As for the proposed budget for the completion of such project, it would take (504 300) Egyptian pounds, which is a modest sum for such project. This project would help increase the capacity on one hand, and on the other

hand, it would contribute to activating practical training systematically to keep pace with developed countries.

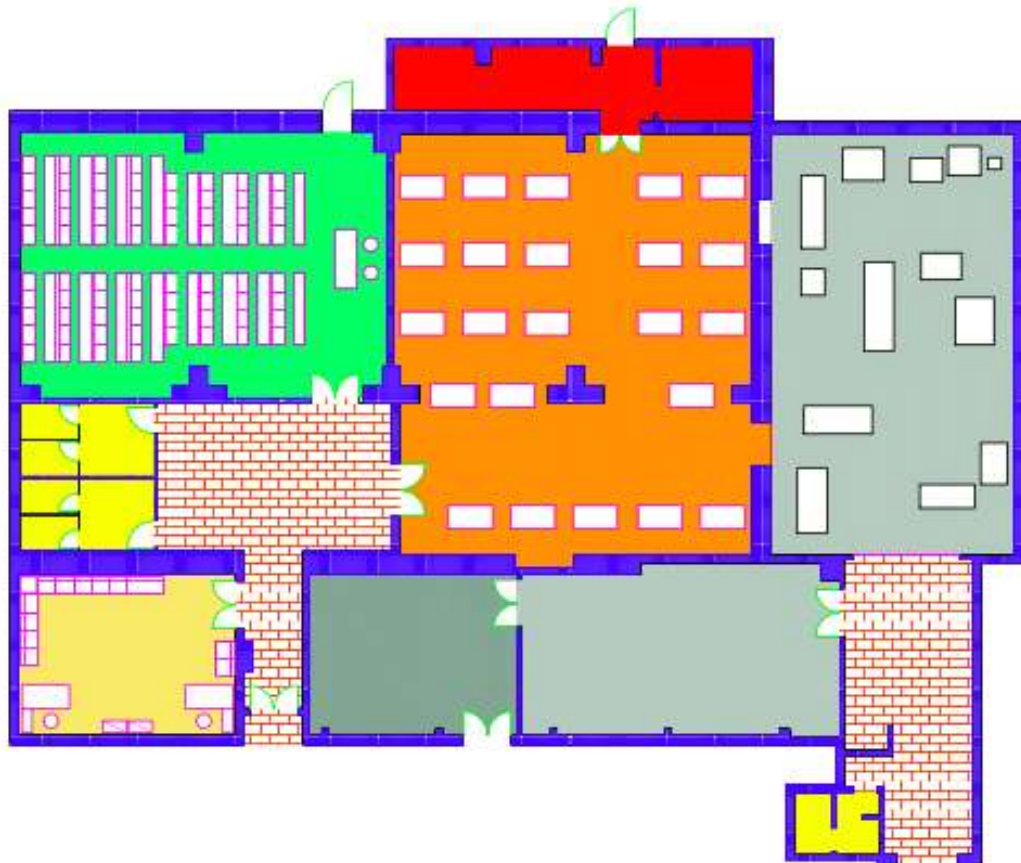
The Proposed Design for the Carpentry Workshop Building.

1. Spaces Distribution Plan.
2. Equipments Distribution Plan.
3. Spaces and Proportions of the Division of the Workshop Table.

Stages of Repair and Maintenance for the Carpentry Workshop Building.

1. Restoration Needed for the Workshop Table.
2. First Phase of the Implementation Table in the amount **95745 EP.**
3. Second Phase of the Implementation Table in the amount **101130 EP.**
4. Third Phase of the Implementation Table in the amount **90062 EP.**
5. Fourth Phase of the Implementation Table in the amount **107845 EP.**
5. Fifth Phase of the Implementation Table in the amount **109500 EP.**

VIII. Design of Carpentry Workshop



Interior Design Workshop Spaces Table

	Calor	Titled	Area M2	Percent	Notes
1		Training Workshop	166.68	21.51%	46 Student
2		Machines Workhop	117.35	15.15%	
3		Lecture Hall	107.38	13.86%	80 Student
5		Hallway (1)	68.64	8.86%	
4		Assembly Workshop	48.91	6.31%	
6		Hall (2)	41.00	5.29%	
7		Office	35.29	4.55%	
8		Storage	32.28	4.17%	
10		Student Restroom	31.15	4.02%	
9		Dye Workshop	27.88	3.60%	
11		Workers Restroom	5.79	0.75%	
12		Walls Space	92.44	11.93%	
		Total Area	774.79	100.00%	

Work Needed for Restaring and Maintaining the Carpentry

Work Needed	Unit	Quantity	Category USD	Total Price
Demolition and Removal of Walls	Piece	1.00	390.00	390.00
Build and Supply Walls of 20 CM thick	M2	148.00	12.00	1776.00
Build and Supply Walls of 15 CM thick	M2	103.95	10.00	1039.50
Building a Concrete Layer	M2	372.75	6.00	2236.50
Build and Supply Sound Proof Walls from Styrofoam	M2	37.80	3.00	113.40
Install and Supply Ceramic Floors (0.40m x 0.40m) for Lecture Hall,Office,and Passages	M2	265.65	16.00	4250.40
Install and Supply Ceramic Wall (0.20m x 0.20m) for Restrooms	M2	38.85	14.00	543.90
Install and Supply Ceramic Floors (0.20m x 0.20m) for Restrooms	M2	157.50	14.00	2205.00
Supply Epoxy Cooting for Workshops Floors and Storage	M2	413.70	8.00	3309.60
Install and Supply Fake Ceilings from Slabs Gypsum (0.60m x 0.60m) that are Soundproof	M2	226.80	14.00	3175.20
Install and Supply Partitions and Interior Doors from PVC FOR Restrooms	Piece	22.00	90.00	1980.00
Install and Supply Aluminum Strips (Dampa) for Restrooms Ceiling	M2	38.85	18.00	699.30
Polishing with Enamel Paint for Interior Walls	M2	1648.50	3.00	4945.50
Painting Ceiling	M2	383.25	2.00	766.50
Polishing Exterior Walls	M2	498.75	3.00	1496.25
Install and Supply Solid Doors (1.6m x 2.2m) from Swedish Wood that are 25 CM Wide	Piece	5.00	800.00	4000.00
Install and Supply Emergency Doors that Resist Fire (1.2m x 1.2m)	Piece	2.00	400.00	800.00
Pluambling		1.00	9000.00	9000.00
Electric Extensions		1.00	8000.00	8000.00
Install a Coustics, Network Pipes , wires		1.00	4000.00	4000.00
Install and Supply Funitere for Lectere Hall		1.00	4600.00	4600.00
Install and Supply Benchs (beech wood tables 1.5m x 0.8m) for Workshop		23.00	300.00	6900.00
Install and Supply Funitere for Office		1.00	1000.00	1000.00
Total				67127.05

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