

# Flexibility in Modular Furniture Systems in Open Offices, Famagusta, North Cyprus

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**Abstract**—Nowadays, flexibility introduced as a modern technology in furniture systems especially in interior planning design. According to results, the most important impact of these systems can be seen on open plan design that makes workspaces comfortable and increases the productivity of employees besides making good relationship between them. Briefly, there are some factors along with new systems in furniture design help create inappropriate space to make working better and easier while it has modular planning organization. It brings about some approaches to have a successful space for open offices with modular design and flexible furniture systems. These approaches have been investigated in open and close offices at Eastern Mediterranean University (EMU) in Famagusta, Cyprus, using information extracted from questionnaires.

**Keywords**—Flexibility, Flexible Furniture, Modular design, Open offices, Modular furniture systems.

## I. INTRODUCTION

WORKSPACES are private places like houses, which should satisfy staffs mentally and physically. Thus, inappropriate workspaces are one of the major reasons that cause working problems, lack of cooperation among staffs, and subsequently mental problems.

Furniture can solve these problems by introducing or designing flexible modular systems. This strategy can be applied by taking into account: 1) Panel height, 2) Number of sides, 3) Internal layout, and 4) the surrounding materials.

## II. PROBLEM STATEMENT

1. In some cases, there are reduced levels of employees' privacy in open office area.
2. This kind of planning decreases job satisfaction and performance and increases visual and audible noises.
3. Other problems of these planning systems are related to body and health conditions such as high-pressure blood or stressful tensions.

## III. RESEARCH QUESTIONS

- What are the effects of flexible furniture systems on productivity in open offices?
- What are the problems of employees with their furniture systems in open offices?

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- What is the effect of modular furniture on employees?
- What is the effect of flexibility (flexible furniture systems) on productivity in open offices?
- What kind of furniture should be used in open offices?

## IV. AIM AND OBJECTIVE OF THE STUDY

Objectives:

- This research seeks to understand the intricacies in designing furniture for open offices.
- To throw more light on the concept of an open office.
- To understand the relationship between modular furniture and the employees' productivity.

## V. METHODOLOGY

Interviews and Questionnaires

This research concerns Open Office flexible design considering two case studies among EMU employees.

Therefore, a structured questionnaire is prepared for 30 employees in certain departments asking about their furniture systems and how they effect on them.

## VI. LITERATURE REVIEW

### • Flexibility

What is flexibility?

The flexibility is the way of designing a work environment in which furniture can be easily moved. It provides a workplace with multifunctional characteristic. The offices and companies use flexibility to enhance management process and employees performance. It also can improve employees' satisfaction and decreases their stress and health problems [1]

Flexibility has some beneficial implications in architecture:

1. Moving partitions easily
  2. Reducing the time of planning and organization
  3. Having a flexible open plan office [2]
- Most of the employees want to work together instead of working individually.

*"The work place is becoming more geared to collaborative, interactive work; versus individual work"* Laing says [3].

Therefore, good plan design and furniture system can be used [4].

"In fact, some organizations have begun deploying "wheelies" or mobile file cabinets that also act as docking stations" Dunnell says [3].

"Flexibility is about an employee and an employer making changes to when, where and how a person will work to better meet individual and business needs"[5].

In a study, researchers investigated another advantage of flexibility in walls, elements, and furniture, which do not have non-solid volume, so that they can be made flexible and movable [4].

#### • **Modular Design**

Modular design can add or remove elements and in office, walls, ceilings, doors, or even windows can be used for this purpose. Sometimes desks can be used as partition to divide each parts of planning design [3].

#### • **Open Plan Office Systems**

Open plan was introduced in office design about 20 – 30 years ago with cubicles called "bullpen offices; they used simple tables without walls or any frame and furniture.

*"A cubicle was a transition to a private office. They provided some visual and acoustical privacy"* [3].

Introducing some changes in past decades, employees started to use movable furniture in office buildings.

One way to decrease cost in open plan spaces is reducing the number of partitions and using new furniture systems as well as new technologies.

*"Clients are expecting less costly, less elaborate systems that they can more easily manage themselves,"* Laing says [3].

The working space should be divided among employees, and furniture systems can be shared between them based on their common organizational duties Laing said that *"The furniture has to respond to that"*[3].

Flexibility in workspaces is one important factor to grab user's attention. *"Flexibility in where, when and how work is undertaken is a priority for most employees at different times in their careers if employers are to attract and retain staff they need to offer and support flexibility at their workplace"*[6].

#### • **Open Plan Office**

Architects have introduced open plan for the first time in 1950; also, they considered about decreasing design cost, besides high level of quality in workplace where they wanted to improve employee's creativity and their relationship with their bosses.

*"A lot of open-plan offices are just rows of people only working at their computers. And people don't want to be there"* Alexi Marmot Says [3].

There are some key concepts in this type of planning design:

1. Job satisfaction: workers should be satisfied with their workplace; maybe they need mentally efficient spaces.
2. Privacy in offices: Workers can use special partitions for privacy problem.
3. Noise and comfort: Noise is a big problem in destroying privacy and be comfortable in your personal space.

Open plan workspaces can contribute to the following: 1) Team work; 2) Collection of contact; 3) Preparation of good furniture systems; and 4) Private parts of a company [7].

#### • **Convert Close to Open Offices**

Flexibility is one of the beneficial ways for workspaces to decrease barriers in a space and help employees.

There is a relation between employees' behavior, physical environment, and performance in workstations. There are also many researches on this subject [8].

A successful shifting from close office to open one includes four features:

1. Understanding elements to encourage employees such as furniture design.
2. Each employee has special attitudes towards furniture systems, so these places should be standardized in every aspect. In shifting to open plan office, one approach to reach highest impact is the way of people being encouraged to accept plan changing.
3. Let employees to have their choice.
4. Ask employees for their opinions on these changes and aims of project.

#### • **Factors Useful to Create Healthy Open Offices**

The factors decreasing employees' mental comfort can also reduce their satisfaction, which can be resulted in creating negative atmosphere [8].

These include planning, listening, sharing, availability, and following up.

- **Planning:** The first step is to design a correlation plan to create a good connection between employees and furniture.
- **Listening:** The second point is to listen to clients, which cause a good relationship.
- **Sharing** helps employees to get the information they need to identify future changes as move and redesigning through effective instruments, such as, internet, mobile, fax, etc.
- **Availability:** It is likely you move different ways and directions during the day, but it is important make yourself and your colleagues available to end-users participating in change during the time of change are going on [9].
- **Following-up** is vital to monitor how employees are accommodating with new designed environment, to recognize the influence of changes on their job performance, or to make workflow easier.

#### • **Technology of Flexibility**

Flexibility technology makes workers to access more open spaces to have small conference or working together. It makes employees to have movable furniture, which help you to work easier. One effect of this new technology is changing management ways because of office furnishing.

Moreover, this technology supplies variable workspaces to help employees to solve their problems through using flexible furniture.

Flexible furniture is a newest technology for designing comfortable places like offices in which everything can be moved and changed more easily.

*"The role of the office is to facilitate people working together, not to separate people into different departments"* Cal craft says [10].

In this essay, the main aim is to show how flexible furniture systems can exert good effects on productivity and employees in many ways that rely on the organizing approach.

## VII. DATA EVALUATION

### • Case Study

Eastern Mediterranean University -North Cyprus  
 (Register Office/Rector Office)

- Register office is an open plan office in which employees are working together without any partitions or any personal privacy as opposed to Rector Office that has semi-open space with some parts having close plan office systems. Therefore, most of workers have their own area and sometimes three employees work together in semi-open plan office systems.
- The total number of questionnaires is 30 assigned to persons who work in close and open offices in EMU and some private companies. The subjects are composed of 17 males and 13 females. About 43.3 percentages of offices are close office and 56.7 % are open offices, so open offices are the places that most of employees work there.

TABLE I  
 MALE AND FEMALE PREFERENCE ACCORDING TO TYPE OF FURNITURE

	Fixed Furniture	Flexible Furniture	Both	Total
Male	7	6	4	17
Female	5	4	4	13
Total	12	10	8	30

40 percent of employees prefer fixed furniture; while, 33.3 percent of them like to have flexible furniture.

TABLE II  
 NUMBER OF PEOPLE WHO PREFER FIX AND FLEXIBLE FURNITURE IN OPEN OFFICE

	Open office	Close office	Semi-open office	Total
Fixed Furniture	1	11	0	12
Flexible Furniture	5	4	1	10
Both	2	3	3	8
Total	8	18	4	30

- To men flexible furniture has more positive effect on employees than to women. Moreover, it is revealed that the male offices were as twice in number at open offices as females'. Female employees were almost merely working at close offices.

TABLE III  
 EFFECT OF FLEXIBLE FURNITURE ON EMPLOYEE

	Good Effect	Negative Effect	No Effect	Total
Male	15	0	2	17
Female	8	3	2	13
Total	23	3	4	30

- The good effect of flexible furniture systems on open offices is more than close offices; while, the negative effects of it on open office is more than close offices.

## VIII. CONCLUSION

According to the statistics and results of data evaluation in previous part, it is understood that employees in workspaces tend to work in private and healthy spaces with high quality in productivity, so they have different attitudes toward their furniture and planning design.

In conclusion, statistically speaking, open offices need to pay more attention to furniture systems in compare with close and semi-open offices.

One solution for these problems is designing a modular plan to provide enough privacy and make an area to encourage employees for working by using flexible furniture systems. Results show that systems using some special materials, such as, fiber composite, fiberglass, etc. They can be useful for well-designed furniture, and have good effects on most of employees specially in workspaces, like, open offices. According to these results, some factors play a role in providing successful space for open offices with modular design and flexible furniture systems:

1. A designer should understand elements of furniture systems.
2. A critical point for good designing is recognizing employee's attitude toward different positions in their working and their spaces.
3. Professional designers should let employees to choose their working area before planning.
4. After choosing appropriate area, employees should be asked for their preference on the kind of furniture that they want to have (flexible or fixed systems).

Overall, this study suggests a new technology of flexibility for furniture besides modular plan designing for modern open offices to help people to have comfortable spaces with the best furniture and organized plan that can work easier than the old systems.

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