Assessing the Effectiveness of Applying a Tailored Time Management Course in Reducing Wasting-Time Attitude of University Students in the Field of Clothing Technology

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Abstract
The purpose of the present study is to apply a tailored time management course on fourth year students at the Home Economics Department, Women Faculty for Art, Science, and Education at University of Ain Shams, Egypt, to improve their planning and productivity in the field of clothing technology. During this study, the time consumed in the process of delivering a final product (woman's jacket) was determined through a two-stage process: 1. The "before" stage which was conducted in a real clothing and textile factory, before taking the time management course. And, 2.The "after" stage, which was conducted in the clothing laboratories after the course was applied. Statistical analyses were conducted for both stages, as well as the expected (control) time for the whole process. The results showed that the "before" stage had the highest mean value while the control had the lowest one. It was also found that there was a significant difference between the before and after stages while there was no significant difference between the after stage and the control.

This calls for the need of teaching the time management soft skill to reduce the “wasting-time” attitude and improve self-regulatory behavior of students in the field of clothing technology.

Keywords: time management, assessment, tailored course, clothing technology

Introduction

Time management has been described using many different terms including spontaneity, balance, flexibility, and having control over time (Lakein, 1973). Time management has also been characterized as a habit developed through determination and practice (Simpson, 1978), or the process by which an individual more effectively accomplishes tasks and goals (Schuler, 1979; Mackenzie, 1972, 1975 and 1990). But despite the widespread use of the term time management, there is currently no universally accepted definition of time management. In general, time management is most commonly defined as the process of exercising conscious control over the amount of time spent on specific activities, to increase efficiency (Wetmore, 2005). It may be aided by a range of skills, tools, and techniques used to manage time when accomplishing specific goals (Wetmore, 2005).

Time management and "wasting time" attitude in workplaces

According to researchers, 20% of the average workday is spent on "important" things, while 80% is spent on things that have "little" or no "value" (Slaven and Totterdell, 1993 and Jones and Hood, 2010). Another study found that people claiming to work 60 to 69 hours per week clocked an average of 52.6 hours, while those who believed they worked 70-80 hours a week, their actual working time is not more than 58.8 hours where, most people use 60% or less of available work time (Gorlick, 2009).

A study by Green and Skinner (2005), found that office distractions ate up 2.1 hours a day for the average worker. People switch activities, such as making a call, speaking with someone in their cubicle or working on a document, every three minutes on average (Foster, 2006). Another study from the Institute of Psychiatry at the University of London suggests that a person's IQ falls 10 points when he/she's fielding constant emails, text messages, and calls, the same loss a person would experience if he/she missed an entire night's sleep and more than double the 4-point loss a person would have after smoking marijuana (Wilson, 2005). Furthermore, on a typical day, office workers are interrupted about seven times an hour, which adds up to 56 interruptions a day, 80% of which are considered trivial, according to time-management experts (Cole, 2004). Also, researchers studying the behavior of busy managers in nearly a dozen large companies found that 90% of managers squander their time in all sorts of ineffective activities. In other words, 10% of managers spend their time in a committed, purposeful, and reflective manner (Bruch and Ghoshal, 2002).

There is debate over exactly what skills and behaviors constitute effective time management. In order to utilize time effectively, a person must first be able to predict how much time is needed for the activity (Kelly, 2002). A person will become effective in using his/her time only when he/she clearly knows what they want to do, what they need to do, and for which specific target date (Soucie, 1986). They need to be more aware of how to use their time by respecting their established priorities while minimizing distractions (Soucie, 1986). Also, Crutsinger (1994), stated that time management involves determining what one should do by setting goals, deciding which events are the most important, making decisions about how much time to allow for certain tasks, adjusting to the unexpected and reconsidering goals and priorities on a regular basis.

Time management behaviors have more recently been characterized as making lists, organizing, goal setting, keeping evaluating schedules and breaking down tasks into simpler parts (Kelly, 2002).

Studies examined the effectiveness of time management training programs

In the literature, there are five studies that examined the effectiveness of time management training programs. Three of them examined employed adults (Macan, 1994; 1996; Orpen, 1993 and Woolfolk and Woolfolk, 1986).

Results of the two early studies (Orpen, 1993; Woolfolk and Woolfolk, 1986) indicated that time management training has significant immediate and long-term effects on time management attitudes and behaviors on those who receive time management training than those who do not. In comparison, two later studies (Macan, 1994 and 1996) found time management training to be only minimally related to subsequent use of time management behaviors. However, individuals who participated in a time management program did perceive more control over their time after the program. Furthermore, Macan (1994) was the first to examine the relationship between time management behaviors and the Theory of Planned Behavior (TPB). This model suggested that learning time management skills and consequently engaging in time management behaviors would lead to a greater perception of control over time.

Time management and clothing technology

One of the very important requirements in a workplace is performing work in time. Clothing technology is no exception where, time management of production is a comparative advantage for clothing manufacturers in global markets today, because it reflects on the quality, cost and rate of production. Therefore, it is necessary to make a thorough research on the structure of time of work and methods for determining the time of technological operations (Colovic, 2011).

Barnes, (1947) used the expression "Time and Motion Study" to emphasize that it is necessary first to define the appropriate method and then to determine the time. The time and motion study can be explained as: Analyzing methods, materials, tools and equipment used or to be used in the performance of a work. These analyses are conducted with the intention to ● find the most economical way of performing this work; ● standardize the method, materials, tools and equipment; ● determine precisely the time required for the qualified and appropriately trained worker, who works at normal intensity, to do the task and ● assist in training workers for the new method.

Clothing production deals with norm working. Norm is the time that an average skillful worker of appropriate expertise needs to perform a specific technological operation with normal effort and fatigue, at normal environmental action and under normal conditions of work.

Working norms vary according to the method of determining them. Researches in clothing technology, which have been made since 1960, have not found a unique

method for determining the time of technological operations. Different methods based on different scientific researchers are used nowadays.

Heckner (1975) developed a method for calculating machine-hand times which introduces the parameter of curvature of seam and the correction of stitches sewing speed depending on the specific density of stitches. He also discovered that the decrease or the increase of stitches sewing speed is also affected by psychophysical abilities of workers beside the machine. In another study, Hopf (1978) proved, through researches and analysis of machine-hand time, that sewing time of stitches depends on several factors including: the stitches sewing speed, the density of stitches, the accuracy of compiling the edges and the skills of workers. Where, Lohman (1987) proved that more accurate times of sewing can only be determined on the basis of average stitches sewing speed, but without the consideration of important factors including: the stages of acceleration and deceleration of the main shaft of sewing machines, the number of segments of joining one seam, the accuracy of joining seams and the level of training of workers.

Many systems exits and numerous productivity books and courses attempt to impose one system or another for time management. These systems prove to be effective at first, but seem to get forgotten over time and people fall back to their bad habits once more. Here, a tailored time management program was designed specifically for senior students in clothing technology, to help in improving their time management skills in workplaces.

Methodology

The time management course, applied in the current study, was designed by setting the following points: 1. Choosing course materials, students will learn during the course to help improve their time management attitude in clothing and textile workplaces, 2. Choosing the final product, students will apply during the study and 3. Choosing the appropriate method for time measurement and collecting of data.

1. *Choosing course materials:*

Course materials were divided into two different types of topics:

a. General topics about time management:
In the first part of the course, four topics, with general concepts about time management, were chosen for the current study to set students' minds about saving time attitudes in general. Those topics were:

1) Attitude towards Time
2) Planning
3) Organizing
4) Dealing with People

The description of each topic is listed in table (1).

b. Saving time principles in clothing industry workplaces:
In the second part of the course, the five main principles about saving time attitude in clothing industry workplaces were chosen to teach students that; proper design of each workplace, along with finding suitable methods of work with the appropriate

time standards ensures better structure of technological operations. The five principles are:

1) Principles in designing the workplace
2) Principles in designing the working processes
3) Principles in determining the working time
4) Principles in handling material and tools
5) Principles in designing the environment.

Descriptions of these principles are listed in table (2).

2. *Choosing the final product:*

A classic, easy to conduct design was chosen for the study, this design consisted of a woman's jacket, using one color in the outfit with two different textures that gives a richness effect, pleasing rhythm and a simple proportion. The lines in this design consist of vertical lines, which lead the eye up and down and give the impression of added length. Large pockets were added for good decoration as they attract the eyes and break the large space of the front side of the jacket. The whole design is symmetrically balanced.

The jacket is made in twenty-six steps in the sewing process (listed in Table 3), and five steps in the finishing process (listed in Table 4), with different technical difficulty that needs an average skilled worker to perform. Fourth year students at the Home Economics Department, Women Faculty for Art, Science, and Education at the University of Ain Shams, have the proper background knowledge and skills to make such product.

3. *Choosing the appropriate method for time measurement:*

A Stopwatch timer method was used for time measurement as it the generally used method to determine production time in clothing industry. Frederick W. Taylor developed the stopwatch time study in 1880. This method includes several techniques:

(a) *Continuous time technique*: in this technique, two large watch hands, with only one of them moving during the recording, and the other one can be stopped. The recorder takes only a total time and calculates the average production time.

(b) *Snapback time technique*: in this technique, a big watch hand makes full circle, then a small watch hand on a small dial moves for one degree and shows the value of one minute.

(c) *Three-Watch Time technique:* is a better technique than both the continuous and the snapback ones. Three continuous stopwatches are used on one board for each stage. When the worker finishes the task, the recorder pulls a common switch and presses it down. One watch is stopped so a reading can be made, the second watch is restarted and the third watch is reset to zero waiting for the time of the next task. The *Three-Watch Time technique* was used in this study.

Table 1: Descriptions of the chosen time management topics

Session	Topic	Contents
1	Attitude towards Time	▪ How different people look at time? ▪ What mental techniques can you use to increase your productivity? ▪ What is the impact of perfectionism on your productivity and how can you manage it? ▪ What stops you from starting a task and how can you overcome it? ▪ What techniques can you use to avoid procrastination? ▪ How to take advantage of "dead time"? ▪ How to free your mind from thinking continuously about critical tasks? ▪ How can you optimize your day based on your capabilities and your workload?
2	Planning	▪ How to set goals to maximize your productivity? ▪ How to set your mission statement? ▪ Which planning style is better? ▪ How to brainstorm? ▪ How to plan if you don't like planning?
3	Organizing	▪ How to organize your environments? ▪ What reference, tray and calendar systems work best? ▪ How to take advantage of GTD principles (Getting Things Done)? ▪ How to priories your tasks based on urgency and importance?
4	Dealing with People	▪ The art of saying No. ▪ How to deal with interruptions politely? ▪ How to delegate to increase your productivity?

Table 2: Description of the chosen topics about saving time principles in clothing industry workplaces

Session	Principle	Contents
1	Principles in designing workplace	▪ Properly designing workplace should make possible for the work to be performed either in standing or sitting posture. ▪ There should be enough space at the workplace for the operator to stretch his/her legs comfortably. ▪ Each operator should have a seat of such type and height as to assume proper posture in work. ▪ Armrest should be provided if the nature of work allows.
2	Principles in designing working processes	▪ In performing an operation, the posture that should be applied, requires the minimum energy consumption. ▪ Standing posture should be used only when higher hands should apply force or when movements are necessary (cutting material, trim). ▪ Work should be organized so as to use both hand simultaneously whenever possible. ▪ Hand should be freed from work whenever possible and while serving the tools or machines done by feet. ▪ Specifying the height of sitting, the height and the size of desktop machines, pedal position, distance of chairs, with the necessary sight and visual acuity and the ability to perform simultaneous movements of hands, legs and torso.
3	Principles in determining working time	▪ Pause for the handling loads, improper body postures in work and monotony should also be taught about when calculate manufacturing time, as they seriously impact fatigue coefficient. ▪ Real coefficient and additional time, including lunch break, breaks for physiological needs and justifiable organizational losses should be calculated.
4	Principles in handling material and tools	▪ Operator should be free from transport procedures as much as possible. ▪ Hand should be free from holding all the work pieces. ▪ Each instance of handling the material should be provided it is economically feasible, mechanical or automated. ▪ Tools, materials and work pieces to be handled should be positioned so that the operator is not required to bend his body, if possible. ▪ Tools should be put at the workplace whenever possible.

Session	Principle	Contents
5	Principles in designing environment	▪ When using both daylight and artificial illumination, the light source should always be to the left. ▪ Intensity, distribution and type of illumination should prevent excess strain of the eyes. ▪ Individual sources of light on sewing machine for work with dark materials and topstitch. ▪ Workroom temperature should be adapted to the type of work to be done.

How this study was applied

This study was applied in three stages:

1) ***Before taking the time management course*****:**

This stage was conducted in a real clothing and textile factory. During this stage, students were asked to deliver the final product, which is a classical woman's jacket, where the time consumed for each step during the production process was calculated.

2) ***During taking the time management course*****:**

This stage of the study was conducted in the Home Economics Department classrooms and laboratories. The first part of the course was taught in four sessions (Table 1). The duration of each session was two hours. The second part of the course was taught in five sessions with the same duration of two hours for each session (Table 2). All sessions were run like workshops with the following concepts being considered:

- A series of instructions were conducted at the beginning and at the end of each session to make sure that students understood why they needed to learn the topic, where they would use it and how it could be applied to their real world problems.
- Slides were designed, with many images and diagrams, to be visually engaging and to deliver a memorable message.
- Complex concepts were explained using step-by-step guides with useful animations.
- All teaching materials were included in a comprehensive workbook which students can use and keep as a reference if needed.
- If necessary, extra handouts were provided for exercises that students must submit after completing them.
- Rather than telling the students about new concepts, questions were asked to encourage the students to think of solutions themselves and were more likely to learn and remember the content afterwards.

3) ***After taking the time management course*****:**

In this stage, the factory conditions were simulated in the clothing laboratories of the Home Economics Department. During this stage, students were asked to deliver the

same final product again. The time consumed for each step during the production process was calculated again after taking the time management course.

Results

A tailored Time Management course was applied on fourth year students in the Home Economics Department, Women Faculty for Art, Science, and Education at the University of Ain Shams, with background in clothing technology and good technical fashion skills.

The study was done in two phases; the "before" phase and the "after" phase, where the "before" phase was done before taking the time management course and the "after" phase was conducted after taking the course.

Data were collected and statistical analysis was conducted to assess the effectiveness of the course. The results showed that the highest time taken values were for the "before" phase, for both sewing (Table 3 and Figure 2) and finishing (Table 4 and Figure 3) processes, while the lowest ones were for the control.

The mean velues for all the tested parameters were conducted and significance between all groups were calculated. Results showed that the highest mean value was for the "before" phase and the lowest was for the control. Also, There was a significant difference between the "before" and "after" phases, while there was no significant difference beteen the "after" phase and the control, Table 5 and figure 4.

Table (3): Prevalence of the before, after, and expected time for each unit of the product in the sewing production line in the factory

Opt.	Step name	Operation name	Time(sec)	After time (sec)	Expected time (sec)	Before time (sec)	Before time (sec)
1-	Join left princess seam in the front side	Holding	20.4	46	40	40	93
		Working	10.6			21	
		Passing	15			32	
2-	Join right princess seam in the front side	Holding	20.4	46	40	40	93
		Working	10.6			21	
		Passing	15			32	
3-	Join left princess seam in the back side	Holding	22.7	52	48	45	89
		Working	13			19	
		Passing	12.3			25	
4-	Join right princess seam in the back side	Holding	22.7	53	48	45	89
		Working	14			19	
		Passing	12.3			25	
5-	Join the center back line	Holding	12.5	34.5	30	25	67
		Working	10.6			19	
		Passing	11.4			23	
6-	Join left shoulder of jacket	Holding	10.5	26	22	18	50
		Working	6			15	
		Passing	9.5			17	
7-	Join right shoulder	Holding	12.8	31	28	18	50

Opt.	Step name	Operation name	Time(sec)	After time (sec)	Expected time (sec)	Before time (sec)	Before time (sec)
	of jacket	Working	8.2			15	
		Passing	10			17	
8-	Join the facing part into the center front line	Holding	14.6	35	32	31	77
		Working	8.2			19	
		Passing	12.2			27	
9-	Join the two parts of collar	Holding	15.3	38	34	33	81
		Working	10.3			21	
		Passing	12.4			27	
10-	Join the collar with the nick line of the jacket	Holding	15.6	39	35	34	82
		Working	12.6			25	
		Passing	10.8			23	
11-	Join the collar with the facing part of the jacket	Holding	13.6	30.5	26	29	61
		Working	6.2			14	
		Passing	10.7			18	
12-	Decorate the left front side of the jacket with Embroidery using golden metal thread	Holding	14.2	33	28	25	61
		Working	4.2			11	
		Passing	12.6			25	
13-	Decorate the tow sleeves with Embroidery using golden metal thread	Holding	14.6	37.5	34	31	80
		Working	10.2			22	
		Passing	12.7			27	
14-	Join the left sleeve with the armhole of the jacket	Holding	22.4	47	42	27	80
		Working	8.6			17	
		Passing	16.5			36	
15-	Join the right sleeve with the armhole of the jacket	Holding	26.5	59.2	55	31	99
		Working	12.2			25	
		Passing	20.5			43	
16-	Join the left sleeve and the left side of the jacket	Holding	20.4	43	38	43	92
		Working	18.2			38	
		Passing	4.4			11	
17-	Join the right sleeve and the left side of the jacket	Holding	18.6	45	40	39	99
		Working	12.2			27	
		Passing	14.2			33	
18-	Join left shoulder of lining	Holding	12.6	36	32	27	76
		Working	10.6			23	
		Passing	12.8			26	
19-	Join right shoulder of lining	Holding	14.2	36.5	32	30	78
		Working	9.8			23	
		Passing	12.5			25	
20-	Join the left sleeve with the armhole of the lining	Holding	20.4	46	40	42	96
		Working	10.6			23	
		Passing	15			31	
21-	Join the right sleeve with the armhole of the lining	Holding	20.4	46	40	42	96
		Working	10.6			23	
		Passing	15			31	
22-	Join the left sleeve	Holding	22.7	52	48	28	80

Opt.	Step name	Operation name	Time(sec)	After time (sec)	Expected time (sec)	Before time (sec)	Before time (sec)
	and the left side of the lining	Working	13			25	
		Passing	12.3			27	
23-	Join the right sleeve and the left side of the lining	Holding	22.7	49	44	28	84
		Working	14			29	
		Passing	12.3			27	
24-	Join the lining with the jacket	Holding	12.5	34.5	30	27	75
		Working	10.6			24	
		Passing	11.4			24	
25-	button -holes	Holding	10.5	26	25	25	59
		Working	6			13	
		Passing	9.5			21	
26-	Sewing the buttons	Holding	12.5	53.5	52	26	110
		Working	30			60	
		Passing	11.4			24	
Total Time			**1075.2**	**100**	**963**		**2097**

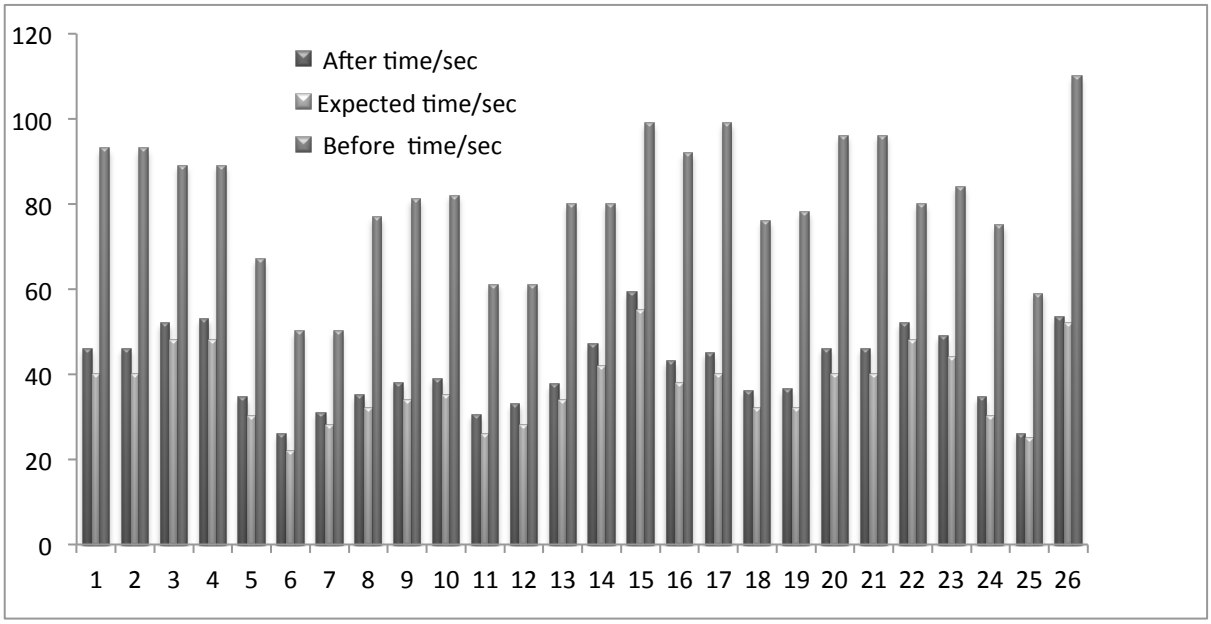

Figure (2): prevalence of the before, after, and expecting time for each unit of the product in the sewing production line in the factory

Table (4): Prevalence of the before, after, and expected time for each unit of the product in the finishing process

Opt.	Operation name	Operation description	After time (sec)	Expected time (sec)	Before time (sec)
1-	Finishing	remove threads and turn in the style	150	130	330
2-	Pressing	Pressing the dress	60	45	115
3-	Inspecting of quality control	Examining finished garment to determine	180	160	390

		acceptability against standards.			
4-	Labeling	Hand tag	10	6	25
5-	Packaging	Hanger + plastic bags then each half dozen in carton	60	45	125
Time needs for one style			**460**	**386**	**985**

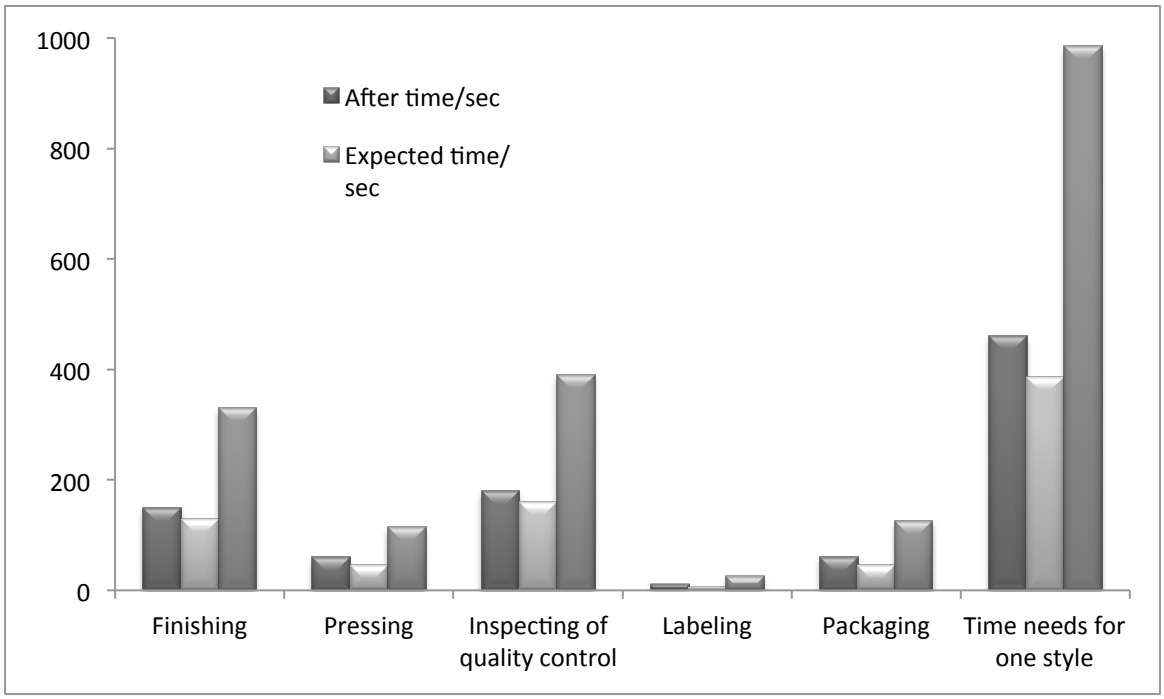

Figure (3): Prevalence of the before, after, and expecting time for each unit of the product in the finishing process.

Table (5): Prevalence and test significance of the mean value for the before, after, and expecting time in each unit of the product

	Mean	**Std. Deviation**	**Sig.**
Expected time/sec	37.038	8.669	NS
After time/sec	41.354	8.957	
Expected time/sec	37.038	8.669	*
Before time/sec	80.654	17.469	
After time/sec	41.354	8.957	*
Before time/sec	80.654	17.469	

NS = Insignificant.
* = Significant at ($p \leq 0.05$).

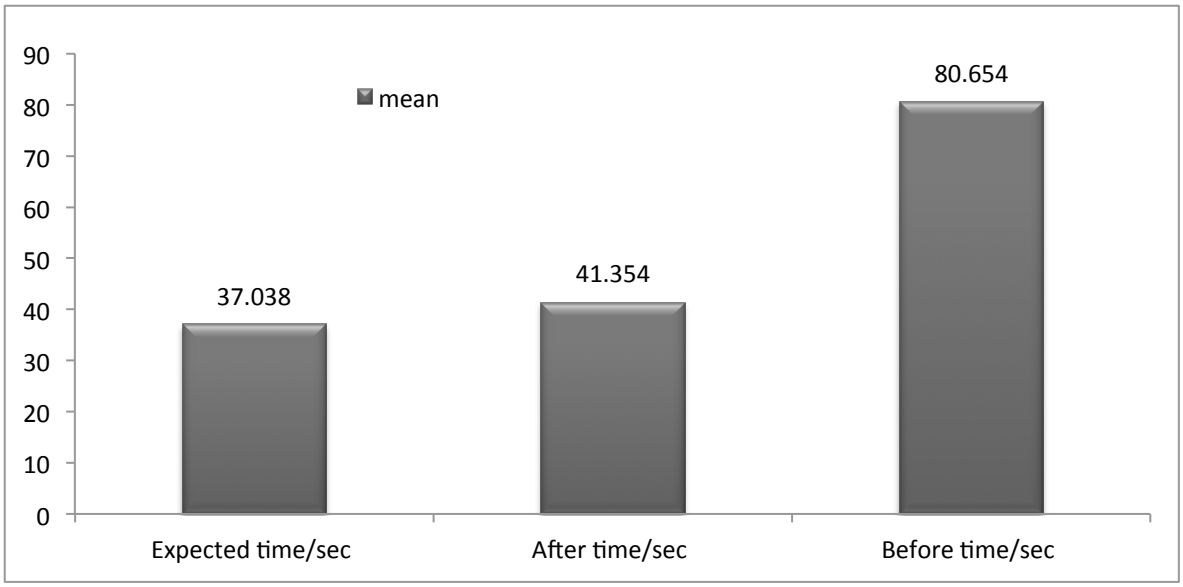

Figure (4): Prevalence and test significance of the mean value for the before, after, and expected time, in each unit of the product.

Discussion and Conclosion

Currently, there is a lack of agreement about the definition of time management, despite the epidemic of time management training programs (Quirk, 1989), and amount of literature summarizing time management across disciplines. Furthermore, Hellsten (2005) has argued that there is a lack of a theoretical model of time management.

In general, time management is a set of principles, practices, skills, tools, and systems working together to help get more value out of our time; where time management is a necessity in any project development as it determines the project completion time and scope (Wetmore, 2005).

In the clothing industry, technological processes of sewing clothes are performed with a large number of technological operations, where each technological operation does not take a lot of time and has a significant physical workload for each worker. The material used during these processes requires a careful handling when taking, assembling, positioning and putting it aside. Therefore, the structure of technological operations is mostly (65% of time) related to the handling of material. The sewing process is performed during the machine or machine-hand time (25%), while 10% of time is used for non-production work (Colovic, 2011).

The present study was applied on fourth year university students with a background in clothing and textile, to improve their time management skills in clothing technology workplaces and to help them reduce their westing time attitute in general. This study was conducted in two phases. Data from both phases were compaired to each other in one hand and to the expected time –the time ideally taken by each step- on the other hand and the following was found: before taking the course, the time taken by each step was almost double the time consumed after taking the course, while there was no significant difference between the data collected from the “after” phase and the

control.

These results were in agreement with Slaven and Totterdell, (1993), who evaluated a two day professional time management course, and examined the possible influence of personal and work factors on training outcomes and their results indicated improvements in self-perceptions of time-use. Moreover, after taking the course, students were able to perform tasks according to a schedule. This was also found by Ray and Jewkes (2004), who trained a selective group of employees in an accounting firm on time management. They found that this group developed some side skills like performing tasks according to task/time table.

Häfner and Stock (2010), studied the effects of time management training on perceived control of time .They found that after training, the subjects were able to work according to task/time schedule. Furthermore, students were capable of following a time-based competitive strategy, which allowed them to perform more tasks in less time. This was also in agreement with Jones and Hood (2010), who evaluated how effective time management can lead to improved personal and organizational performance.

In reality, time is a fixed resource; it cannot be generated, modified, increased or decreased. Time cannot be managed, only activities can be managed to accomplish within the time frame. Thus, calling for the need to integrate time management soft skill courses in the teaching /learning process, to equip university students with the necessary time management knowledge, skills, values, and attitude to help them improve their life quality.

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