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USE OF COMPUTER AIDED PATTERN PREPARATION METHOD IN CLOTHING DESIGNING

GİYSİ TASARIMINDA BİLGİSAYAR DESTEKLİ KALIP HAZIRLAMA YÖNTEMİNİN KULLANIMI

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ABSTRACT

Today, computer aided pattern systems and related pattern preparation processes are generally used for the purposes of modeling based on given patterns, grading and preparing cutting plans. By means of this methodology, patterns are drawn on actual basis or manually drawn ones logged in computer with modifications being made when necessary. Prepared patterns are saved as data to be used later. Companies of ready-to-wear garments record basic patterns as software in their computers on which to prepare new patterns using modeling processes.

This study conducted three different models developed on basic patterns of women pants both manually and in computer to aim at utilizing time and labour more efficiently as well as emphasizing effective uses of computer aided pattern systems in patterning and modeling.

Key Words: Computer-aided pattern systems, Women pants, Preparation of patterns, Modeling, Clothing designing.

ÖZET

Günümüzde bilgisayar destekli kalıp hazırlama sistemleri, genelde temel kalıp hazırlama, temel kalıplar üzerinden model geliştirme, serilendirme ve kesim pastalı hazırlama amaçlı kullanılmaktadır. Bu yöntem yardımı ile kalıplar sanal ortamda çizilmekte ya da çizilmiş olan kalıplar bilgisayar ortamına aktarılarak üzerinde değişiklikler yapılmaktadır. Hazırlanan kalıplar daha sonraki kullanımlar için bilgisayar hafızasında saklanmaktadır. Hazır giyim firmaları kullandıkları bilgisayar programının hafızasına temel kalıpları kaydederek, yeni tasarımları bu kalıplar üzerinden model uygulama yoluyla hazırlamaktadır.

Bu çalışmada, temel bayan pantolon kalıbı üzerinden geliştirilen üç farklı model uygulaması hem elde hem de bilgisayarda yapılmıştır. Zaman ve emeğin daha verimli kullanımı hedeflenmiştir. Aynı zamanda CAD sistemlerinin kalıp elde etme ve model uygulamada daha etkin kullanımının önemi vurgulanmıştır.

Anahtar Kelimeler: Bilgisayar destekli kalıp sistemleri, Kadın pantolonu, Kalıp hazırlama, Model uygulama, Giysi tasarımı.

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1. INTRODUCTION

Although garments have been indispensable part of human life for millennia, the basic element to determine evolution of ready-to-wear garments is that manual labour has been insufficient for output because human population has rapidly been increasing since the middle of 19th century. In spite of increased demand of people for garment due to such

acceleration of population, haute couture designs and sewing were performed until The World War II, after which dramatic losses and shortages brought about inevitable requirements for mass production and therefore establishment of garment business. Mass production enabled production cost to be decreased and people to buy a great variety of garment items cheaper than before (1).

The most significant step in designing garment is to create its construction. Garment designer is expected to have sufficient experience and knowledge to turn his/her design into a finished garment in addition to human anatomy-related phases of patterning, feasibility of the pattern and almost all details from choosing the fabric to modeling all the patterns on it.

The first and most important element of garment production is to prepare a pattern, which can be defined as a means of obtaining a form on human body. Projection of fashion on items and pleasure of masses of people with what has been created as their body-fit garments requires patterns to be attributed to substantial foundations (2).

It is necessary for creative and fashionable designs and models to be applied fast, more cheaply and by using less labour to meet rapidly changing demands of fashion today. Therefore, a multitude of designs-

patterns could be turned into feasible items and new alternatives tried without any significant loss of time and effort. Computer aided pattern systems and related processes allow models to be developed on a trial and effort basis and thus new ideas can be easily applied and patterned into items, which is supported by the purpose of the study concerned.

2. MATERIAL AND METHODS

2.1. Material

Material of the study is composed of three different patterns of women

pants and ASSYST - computer-aided pattern systems.

Front and back views of the pants concerned are in Figures 1, 2, 3, 4, 5 and 6. Model 1 shows women pants with shalwar-cut, low crotch and narrow draped trotters, model 2, a women pants with a elastic waist and draped pockets and model 3, a pants with a draped and high waist and a low crotch.

The models were developed on a pattern of woman pants in 38 size. Table 1 shows a list of sizes for women pants and Figure 7 presents their measuring points.

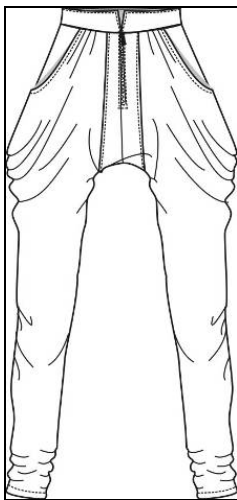


Figure 1. Model 1 (front)

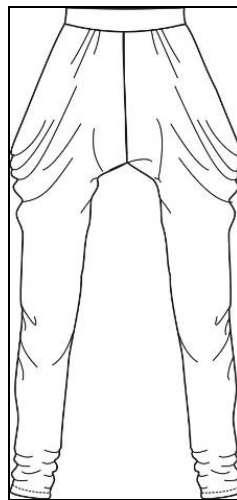


Figure 2. Model 1 (back)

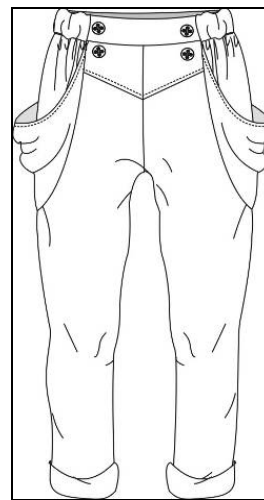


Figure 3. Model 2 (front)

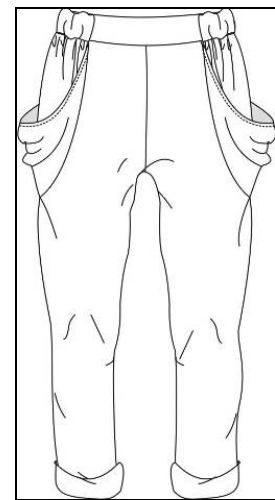


Figure 4. Model 2 (back)

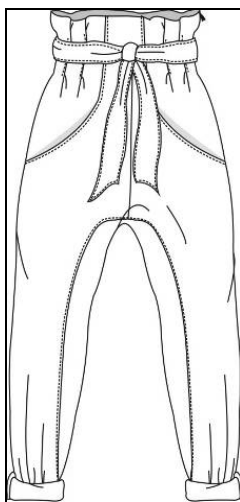


Figure 5. Model 3 (front)

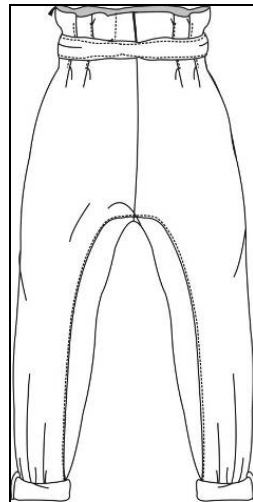


Figure 6. Model 3 (back)

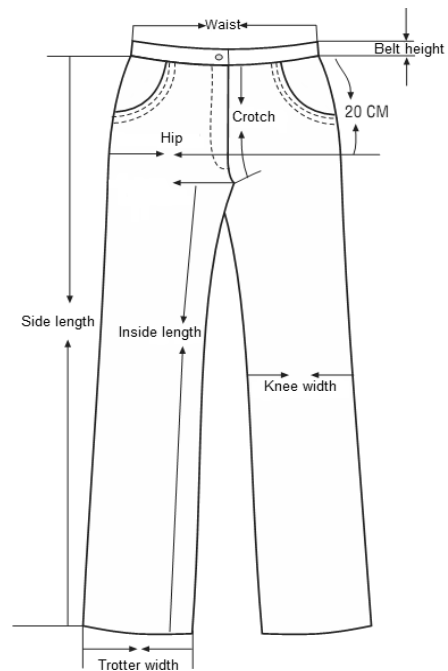


Figure 7. Measuring points of sizes in pants (3)

Table 1. Size table for basic women pants (3)

Sizes	38 Size (cm)
Waist	75
Hip	100
Knee height (from waist)	60
Inside length	78,1
Side length	106
Seat height	27,9
Knee width	48
Trotter width	42
Belt height	3
Hip drop length	21

2.2. Method

- The process of designing has been followed by the study concerned.
- Of the summer collection, three different models has been chosen. Drapes and grooves seen in each model call for a comprehensive study. Periodic comparison of detailed models has been believed to be of better consequence.
- Modeling processes have been made using both manual and computer aided pattern systems
- Periods of manual patterning, modeling processes and Assyst-based modeling have been

recorded on an individual time measurement and step by step basis using a digital chronometer.

The digital chronometer is started on the first measurement point and stopped on the next one with periods of every flows of work being measured separately (4).

- Comparison of recorded periods of time is shown in the tables prepared.

3. FINDINGS

The findings of the study are given below.

Table 2. Periods of time for steps of modeling process for model 1

MODEL 1			Periods of time for manual modeling (second)	Periods of time for CAD modeling (second)
Steps of process for modeling				
Step 1				
1	Determine points of drapes along the waist line on the front		15	10
2	Establish margins on the hip on the front		16	12
3	Determine drape locations on the waist line on the back		17	13
4	Establish of margins on the back hip		15	12
5	Draw the lines connecting waist and hip points on the front and back		36	13
6	Pull down front and back crotches due to the model property		30	15
7	Extend the length of knee and trotters by marking their widths		50	22
8	Interval between steps of process		135	50
Total			314	147
Step 2				
1	Scissors-shearing the drawn pattern out of the front and back sections		45	15
2	Open every divided section in the size of drapes on the waist line		47	20
3	Open every divided section in the size of margins on the hip line		40	20
4	Provide necessary holes between the divided patterns and then sticking them on parchment in their new forms		95	0
5	Form new waist shape on the front and back sections		38	18
6	Form new hip shape on the front and back sections		45	20
7	Combine new pants form on the whole pattern		95	50
8	Interval between steps of process		180	65
Total			585	208
Step 3				
1	Form seam allowances		145	25
2	Determine notch locations on the pattern		20	8
3	Draw straight line of length		20	12
4	Provide size data		15	8
5	Provide model number		20	10
6	Write the name of the pattern		13	15
7	Define the number of cuts for the pattern concerned		10	10
8	Interval between steps of process		90	45
Total			333	133
Total periods of time for modeling			1232	488

Figure 8 shows end of the phase 1, Figure 9 end of the phase 2 and Figure 10 end of the phase 3 of model 1.

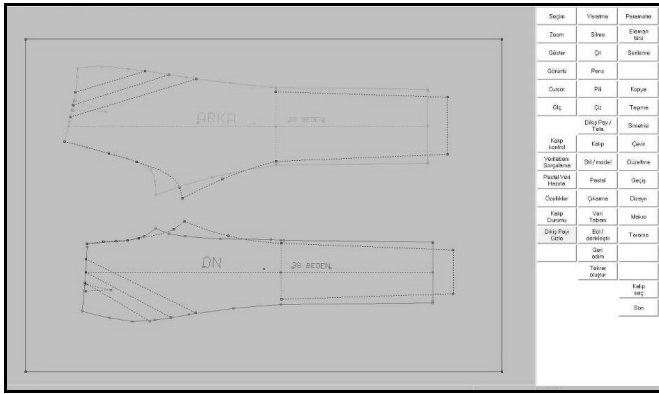


Figure 8. Model 1 – end of the phase 1

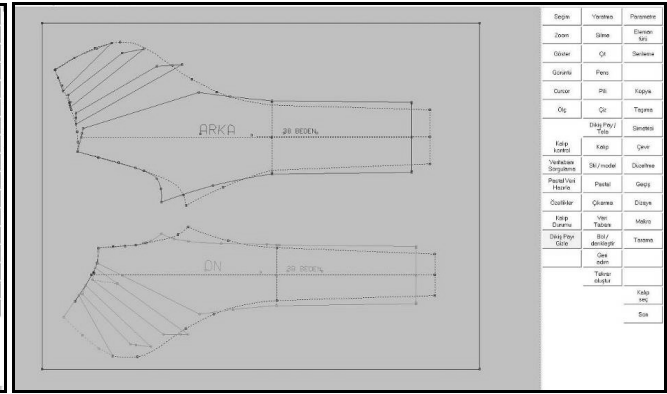


Figure 9. Model 1 – end of the phase 2

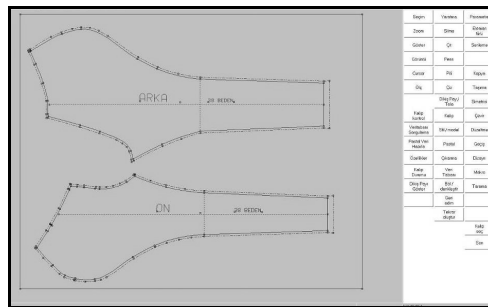


Figure 10. Model 1 – end of the phase 3

Table 3. Periods of time for steps of modeling process for model 2

MODEL 2			Periods of time for manual modeling (second)	Periods of time for CAD modeling (second)
Steps of process for modeling				
Step 1				
1	Drape points on the waist line of the front and cancel the dart		14	8
2	Drape points on the waist line of the back and cancel the dart		12	10
3	Pocket beginnings on the back and the front and combine the two points in curvature		55	28
4	Divide the pattern into halves along the pocket line on the back and the front		25	14
5	Draw drupe points downwards on the divided pattern		26	15
6	Establish corsage location and divide the pattern there		20	16
7	Interval between steps of process		120	40
Total			272	131
Step 2				
1	Divide the pattern along the lines of the lateral piece on the front		30	7
2	Divide the pattern along the lines of the lateral piece on the back		28	6
3	Open the cut pieces in the waist line as much as drupe allowance on the front		22	15
4	Open the cut pieces in the waist line as much as drupe allowance on the back		24	18
5	Stick the new pattern form of the front and back on a paper		60	0
6	Draw new pattern form		55	20
7	Interval between steps of process		85	25
Total			304	91
Step 3				
1	Draw belt pattern		105	20
2	Give seam allowance		180	25
3	Determine notch locations on the pattern		8	8
4	Draw straight line of length		14	14
5	Provide size data		10	10
6	Providing model number		10	10
7	Write the name of the pattern		15	15
8	Define the number of cuts for the pattern concerned		10	10
9	Interval between steps of process		100	50
Total			452	162
Total periods of time for modeling			1028	384

Figure 14 presents end of the phase 1, Figure 15 end of the phase 2 and Figure 16 end of the phase 3 of model 3.

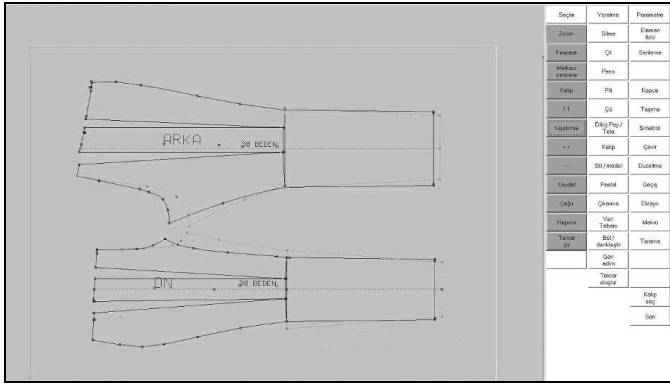


Figure 14. Model 3 – end of the phase 1

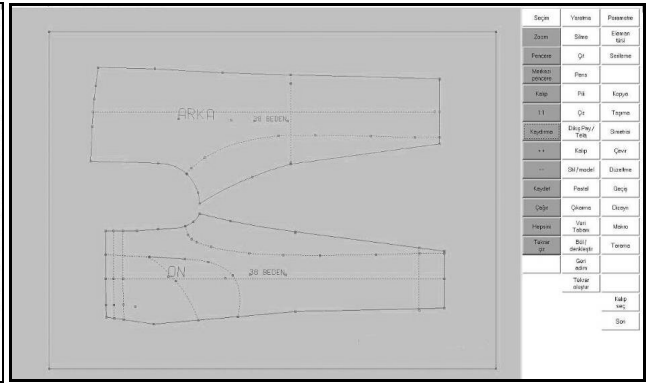


Figure 15. Model 3 – end of the phase 2

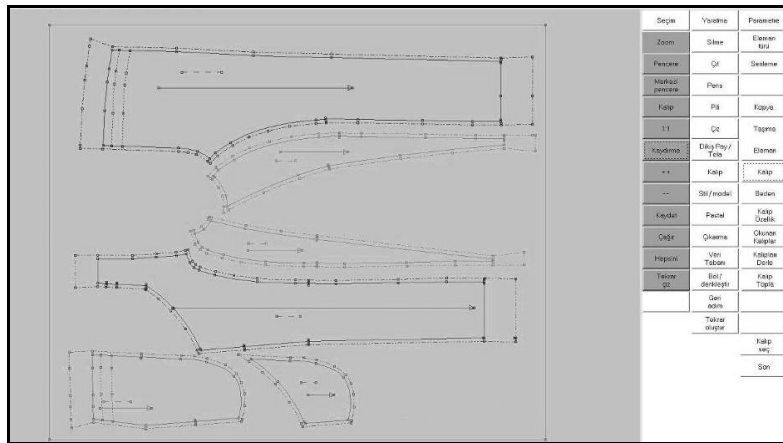


Figure 16. Model 3 – end of the phase 3

Table 5. Periodic comparisons of modeling steps

	Model 1		Model 2		Model 3	
	Manual modeling (second)	CAD modeling (second)	Manual modeling (second)	CAD modeling (second)	Manual modeling (second)	CAD modeling (second)
Step 1	314	147	272	131	413	125
Step 2	585	208	304	91	238	137
Step 3	333	133	452	162	366	145
Total	1232	488	1028	384	1017	407

Table 5 shows periodic comparisons of modeling phases of three models. It is clear from Table 5 that periods of manual modeling is 2,52 times computer aided pattern systems modeling in model 1, 2,68 times in model 2 and 2,50 times in model 3.

4. CONCLUSIONS

It is necessary for a garment designer to manage computer aided pattern

systems as much as a modelist does, thanks to which he/she would be able to make efficient decisions on his/her designs.

This study emphasizes that computer aided pattern systems are important during the modeling phase in terms of time efficiency within it. In addition, exhaustion, material consumption (paper, pencil, ruler, eraser etc.), space occupation as well as time efficiency

during the drawing phase have been observed to be far excessive.

Efficiency is one of the most significant targets of today's businesses. Periodic comparison of modeling steps has indicated that durations of computer aided pattern systems modeling is much faster, in other words more time-efficient than those of manual modeling (Figures 17, 18, 19).

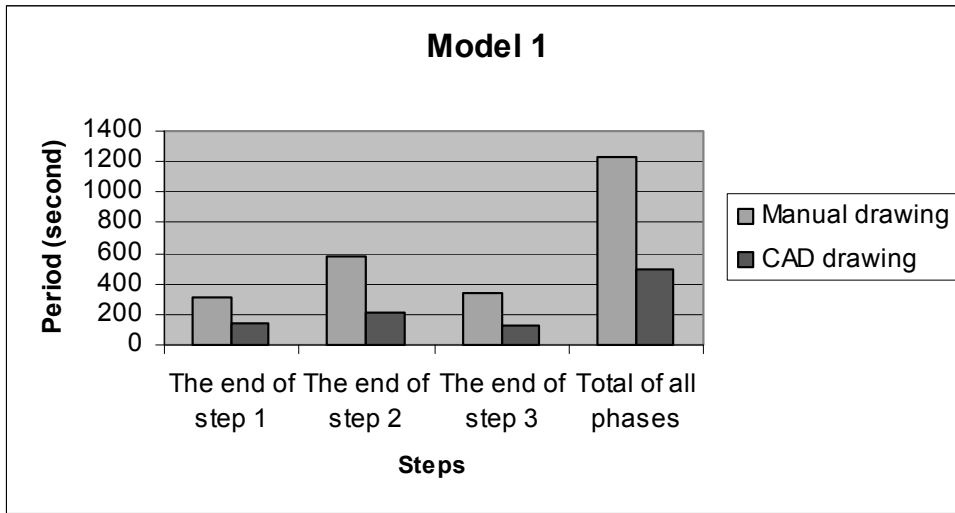


Figure 17. Durations of process phases in modeling for model 1

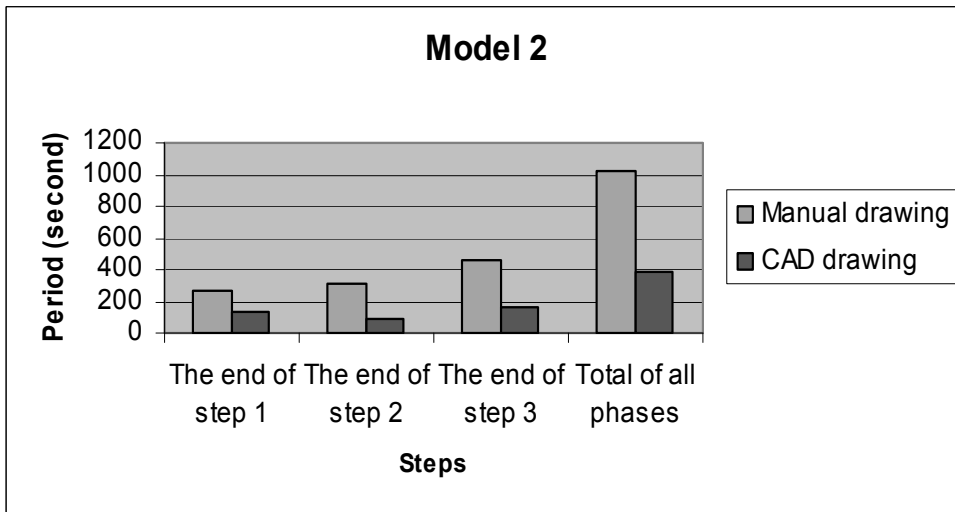


Figure 18. Durations of process phases in modeling for model 2



Figure 19. Durations of process phases of modeling for model 3

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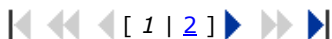
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<input type="checkbox"/>	13	J ENG FIBER FABR	1558-9250	247	0.778	1.150	0.042	48	3.8	0.00076	0.252
<input type="checkbox"/>	14	J IND TEXT	1528-0837	326	1.200	1.680	0.119	42	5.8	0.00060	0.370
<input type="checkbox"/>	15	J NAT FIBERS	1544-0478	135	0.512	0.558	0.034	29	6.0	0.00021	0.103
<input type="checkbox"/>	16	J SOC LEATH TECH CH	0144-0322	283	0.414	0.392	0.056	36	9.3	0.00020	0.064
<input type="checkbox"/>	17	J TEXT I	0040-5000	1253	0.770	0.764	0.139	144	>10.0	0.00143	0.158
<input type="checkbox"/>	18	J VINYL ADDIT TECHN	1083-5601	451	1.000	1.208	0.056	36	6.5	0.00070	0.236
<input type="checkbox"/>	19	SEN-I GAKKAISHI	0037-9875	292	0.164	0.164	0.016	127	>10.0	0.00025	0.028
<input type="checkbox"/>	20	TEKST KONFEKSIYON	1300-3356	104	0.245	0.313	0.024	42	4.1	0.00027	0.063