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Comparison of the manual and CAD system for pattern making one time related values for manual and computer aided design

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Abstract

In today's world, where customers' desires are changing at a great speed and large competition is growing day by day, the need of technology is of utmost importance. To lead technology and operations technology to a general form to achieve competitive advantage, a special form of design technology is the master key to determine nature and form products to whatever tolerable quality levels that work fit for a product to use and all the features and preferences determine through design technology.

Keywords: CAD, value

Introduction

Computed based training, a type of education in which the student learns by executing special training programmes on a computer. Computer based training (CBT) is any course of instruction whose primary means of delivery is a computer. A CBT course may be delivered through a software product installed on a single computer, through a corporate or educational intranet, or over the internet as web-based training. CBT is especially effective for training people to use computer applications because the CBT programme can be integrated with the applications so that students can practice using the application as they learn.

Objective

1. To assess the stages, procedures and time related values for the manual and computer system working method of college going girls on garment construction.

Methodology

The study was conducted in Gorakhpur district of Uttar Pradesh. Two colleges M.G.P.G. College and one college (Department of Home Science of University Campus) were selected out of 90 colleges situated in Gorakhpur district. All students were selected from B.A. II year and III years in age group 18-24 years. Total 237 respondents were selected in this study. Dependent and independent variables such as age, education, caste, Computer Aided Design (CAD) were selected. The statistical tools such as, chi-square, Fisher test, S.D. etc. were used.

Results

Table 1: Distribution of respondents according to their parent's education

Education	Father		Mother	
	Frequency	Percent	Frequency	Percent
Illiterate	28	11.8	51	21.5
Primary	8	3.4	31	13.1
Middle	17	7.4	36	15.1
High School	51	21.5	52	21.9
Intermediate	45	19.0	25	10.5
Undergraduate	64	27.0	31	13.1
Post Graduate plus	24	10.1	11	4.6
Total	237	100.0	237	100.0

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The literacy rate among father of students was found to be 88.2 percent while in mother, it was 78.5 percent. It was

evident from the above fact that fathers/mothers of the students were educated at different level in the present study.

Table 2: Distribution of respondents' knowledge about paper pattern making

Knowledge about paper pattern making	Correct		Incorrect		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Definition of pattern	165	69.6	72	30.4	237	100.0
Tools used for making paper pattern	125	52.7	112	47.3	237	100.0
Parts of paper pattern	169	71.3	68	28.7	237	100.0
Guide symbol of paper pattern	131	55.3	106	44.7	237	100.0
Benefit to make paper pattern	146	61.6	91	38.4	237	100.0

52.7 percent of students had good awareness about benefit for making paper pattern guide symbols and tools used for making paper pattern respectively. Inference can be drawn

from the findings that more than half of the students have good knowledge about paper pattern making in the present study.

Table 3: Mean score of respondents' knowledge regarding paper pattern making during pre, first and second follow up on the basis of type of training, educational level, family background and socio-economic status

Particulars	Frequency	Mean ± S.D.			t – test between		
		Pre	1 st follow up	2 nd follow up	Pre & 1 st follow up	1 st & 2 nd follow up	Pre & 2 nd follow up
Type of training							
Computer based	106	3.20 ± 1.26	3.60 ± 1.08	4.08 ± 0.87	3.23***	4.65***	6.56***
Manual based	85	3.22 ± 1.25	3.87 ± 1.16	4.21 ± 1.00	4.13***	2.46***	6.11***
Total	191	3.21 ± 1.25	3.72 ± 1.12	4.21 ± 0.93	5.20***	4.96***	8.97***
df	189	0.41*	1.64*	1.01*			
Educational level							
B.A. II year	111	3.01 ± 1.28	3.74 ± 1.10	4.08 ± 0.92	5.30***	3.12**	7.59***
B.A. III year	80	3.49 ± 1.16	3.70 ± 1.16	4.21 ± 0.95	1.62*	3.99***	4.91***
df	189	2.65**	0.24*	0.96*			
Family background							
Urban	104	3.26 ± 1.30	3.87 ± 1.05	4.22 ± 0.95	4.36***	2.99***	6.56***
Rural	87	3.15 ± 1.20	3.55 ± 1.19	4.03 ± 0.91	2.89**	4.18***	6.15***
df	189	0.61*	1.93*	1.38*			
Socio-economic status							
Lower	103	3.22 ± 1.24	3.60 ± 1.07	4.22 ± 0.95	3.05***	5.75***	7.11***
Middle	68	3.15 ± 1.21	3.85 ± 1.14	4.09 ± 1.06	4.21***	1.44**	5.23***
High	20	3.35 ± 1.50	3.90 ± 1.33	4.20 ± 0.89	1.40*	1.11*	2.17*
df	189	0.22*	1.30*	1.60*			

* p = 0.05, ** p = 0.01 and *** p = 0.001

The mean knowledge score about paper pattern making was found to 3.20 and 3.22 among computerized C.D. and manual booklet provided students respectively at the time of first survey but after providing necessary educational materials

and practical training it was found to be 3.60 and 4.08 among C.D. provided students as well as 3.87 and 4.21 among manual booklet provided students respectively.

Table 4: Distribution of respondents according to their knowledge about different stages of garment construction before and after intervention

S. No.	Knowledge levels of various stages	Methods	Repeats		
			Pre	1 st Follow up	2 nd Follow up
1.	Parts and its function of sewing machine	Manual	299	341	389
		CAD	348	401	484
2.	Sewing tools	Manual	208	285	348
		CAD	230	339	407
3.	Sewing machine problems	Manual	201	247	301
		CAD	210	306	361
4.	Body measurement	Manual	166	226	308
		CAD	191	282	372
5.	Cutting of fabric	Manual	265	312	349
		CAD	316	364	400
6.	About drafting	Manual	188	264	323
		CAD	229	310	387
7.	Paper pattern making	Manual	274	329	358
		CAD	339	382	432
8.	About seam	Manual	300	334	375
		CAD	417	446	479
9.	Darts and tucks	Manual	248	330	360
		CD	305	369	447
10.	Pleats and gathers	Manual	221	310	358
		CAD	298	356	441
	Total	Manual	2370	2978	3469
		CAD	2883	3555	4210
	Difference	CAD – Manual	513	577	741

Students gained knowledge about type of hand stitches, type of seam, meaning of seam and knowing about how many threads are needed to make running stitch through computerized CAD. Percentage of students were fully aware regarding reasons for using darts in fabrics, types of darts and fabric in which darts are used, using tucks in fabrics and types of tucks through computerized CAD over manual system. The increase in the knowledge among both groups of students was observed computerized CAD and manual booklet along with practical training regarding reasons for using pleats in fabric and type of gathers respectively.

Conclusion

Computer Aided Design (CAD) is the use of computer systems to aid in the creation, modification, analysis, or optimization of a design. CAD software is used to increase the productivity of the designer, improve the quality of design, and improves communications through documentation and to create a database for manufacturing. CAD output is often in the form of electronic files for print, machining, or other manufacturing operations. The term CADD (for Computer Aided Design and Drafting) is also used.

Recommendation

More improvement of the software programmes and training the system operators on pattern making will enable the main size pattern to be prepared from draft; the CAD system will thus become more efficient in the main size pattern stage also. For the CAD system to be more advantageous in the checking and correcting stages of the main size pattern preparation, dependence on individuals in CAD functions should be minimized.

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