5. SUMMARY AND CONCLUSION

The fashion industry in particular has come a long way and has grown into one of the largest industries in the world. Computer is a technology, which has generated great excitement in many branches of textile industry. Digital fashion illustrations really started during the 90s as more affordable and capable technology made, it possible for illustrators to experiment with this fledging art form writes Tallon (2008). Library has a collection of books, newspapers, videos and music kept for people to read, use or borrow. Design library helps the user to recollect and reuse the designs with or without modifications. This is an age of information technology and as on date design libraries do not exist in the digital format. It is a routine practise for people in different walks of life to view designs. If the designs are presented in the digital format, the following groups of people will be highly benefitted. The faculty members of fashion design field can visually present the students the nuances of garment styles and the use this as a teaching aid to show the effect of colours and textures on different personalities. The fashion designing students will avail an enriched knowledge on garments at the click of a button. The textile and garment manufacturer can use this as way to promote their business by presenting their fabrics on different garment styles without physically making a garment. Orders can be approved by internet or visual presentation. Retail textile and garment showrooms / tailors can replace catalogs with digital design which reduces the cost of preparing and maintaining catalogs for every season. It will be very useful for the consumer to select and purchase garments in showrooms and also for placing orders for garment designs with the tailor.

Garment designs for the 3D human figure are usually presented as sketches or photographs, which is 2-dimensional. In 2-dimensional sketches it becomes hard to imagine how it will be in the other angles say for example side view. In this age of information technology, it is essential to have a database of garment designs in the 3D image. Traditional garments are a treasure to our heritage. Hence it is necessary to store

them in the 3D form for the future generation to view our rich culture. Also 3D designing also enhances e-business capabilities by allowing user to create an e-store with the 3D collections prepared by the garment manufacturing companies

Keeping the above facts in mind, the researcher has undertaken an effort to create a design library in the 3Dimensional form using CAD software. The objective of the study include,

- Study the preference of women's garments among the college going girls of South India
- Create 3D design library for the selected women's garments using 3D Studio Max
- Evaluate the 3D design library for its usefulness among the fashion designers, faculty members and students of fashion designing courses, textile and garment manufacturers, textile and garment showrooms, college students, working women, housewives, computer professionals and computer illiterates

Experimental Procedure

The experimental procedure started with a preference study. Here the preferences for women's garment style among college going students was taken and the order of preference was listed. The order of preference from the highest to the lowest was rated as Salwar Kameez, Saree and Blouse, Midi and Tops and Long Skirt and Tops and the same garments were selected as basic styles of women's garments for the Design library.

The basic garment styles for the selected garments were prepared in the 3D Studio Max. Variations in features and fabrics were given to the basic styles. A variety of Salwar Kameez's created include - normal Kameez, short Kurta, flare type, frock type – single, double and three layered skirt. Loose and tight Salwars were the variations of Salwar. Neckline variations are – close, open, halter necklines and shoulder straps. Plain sleeve and sleeveless types are made in the armhole. Panels were created at the centre

and sides. Shoulder yoke and neckline yoke were also added as variations in Kameez. Other variations include asymmetric designs, border at the hemline, and half / half designs.

In the Saree and Blouse designing, most commonly used two draping styles such as South Indian (Tamilnadu style) and North Indian style (Gujarathi style) were created. In the Tamilnadu type of Saree, pleated style and single pleated style Saree were created with border and without border. Plain Sarees, embroidery Sarees, printed Sarees, net Sarees and transparent Sarees were created. In the blouse, plain sleeve and sleeveless Blouse the following neckline variations namely, open neck, close neck and halter neck were done.

The variations in the Midi are – tubular skirt, tubular skirt with frills, gathered skirt (normal and fully gathered), double layered skirt and three layered skirt. The neckline variations in the Tops include close, open and halter neck, shoulder straps and shoulderless. The plain sleeve and sleeveless Tops have princess line yoke, shoulder yoke and neckline yokes. Panels were introduced in the centre and sides. Other variations include asymmetric designs, panelled skirt and Tops. The variations in the Long Skirt and Tops are similar to the Midi and Tops. In addition to the above mentioned changes, silk skirts and skirts laid over with a transparent fabric were created.

Colour and texture was applied to the human model and the garment. A stage set was designed with a spot light and two additional helper lights. A circular path was set for the camera to move around the human model. The entire scene is animated and rendered. The output of the rendered image is presented as a video clipping. The rendered garment designs were placed in folders and files for Salwar Kameez, Saree and Blouse, Salwar Kameez, Midi and Tops and Long skirts and Tops.

The design library was evaluated by fashion designers, faculty members and students of fashion designing field, textile / garment manufacturers, textile / garment showrooms, tailors, college students, working women, housewives, computer professionals and computer illiterates. A carefully prepared questionnaire was used for evaluating the uniqueness of the collection, variations in features and textures, colour combinations, suitability of the garment and design, operation of design library, use of design library as a teaching aid, presentation of garments in 3D form, ability to be viewed in all angles and replacement of catalogs with 3D designs in the retail outlets.

A website was hosted for the design library where the comments of the respondents are taken for evaluation. The website also had timer which helps the researcher in calculating the number of people viewing the website.

The results of the study are discussed under the following heads

3D design library

Evaluation of 3D design library

3D Design Library

The designs were created for the selected women's garments and presented in the DVD form as 3D design library 1, 2, 3 and 4. The details of the design library are as follows

- The design library is created in the 3d studio max and hence is in the .max form and the output of the design library is rendered as a video, in the 'mpeg' format
- This video file can be opened and viewed in any player and it runs or a period of 30 seconds approximately
- The model is positioned in the centre and the camera moves around the model and hence the garment designs can be viewed in 360 degrees
- The complexion of the model also can be changed using 'max' files
- The texture and the colour of the garments can be changed using the 'max' files

- New fabric samples can be photographed or scanned into the system and applied on the garment
- Way of draping the texture on the garment can also be edited
- Design library has folders and files grouped in an organized form in four DVD's titled 3D Design library 1, 2, 3 and 4

  3D Design Library 1- Salwar Kameez

  3D Design Library 2- Saree and Blouse

  3D Design Library 3- Midi and Tops

  3D Design Library 4- Long Skirt and Tops

  All the design libraries have 500 designs and hence the total number of designs created sum up to 2000.

Evaluation of 3D design library

- A majority (85.1%) of the respondents felt that the garment collection in the 3D design library was extremely unique and 11.6% have rated the same as very unique. Three percent of the respondents have rated the collection as 'slightly unique'. None had reported the garment collection as 'not unique'
- It is evident that 83.9% of the evaluators are highly satisfied and 14.1% are satisfied with the feature variations applied in the design library. 1.6% of them have shown neutrality and 0.4% have shown dissatisfaction and none have chosen to rate 'highly dissatisfactory'
- As far as the textural variations in the design library are concerned, 81% and 15.8% of the respondents felt highly satisfied and satisfied respectively. Working women and computer professionals (0.1%) have rated the textural variations as ''highly dissatisfactory' respectively
- The colour combination in the garment collection of the 3D design library was highly satisfactory and satisfactory, as stated by 82.2% and 14.9% of

the respondents. College students (0.1%) have rated the collection 'highly satisfactory'

- The respondents (81.6%) felt that the suitability of the garment and the design (prints) was highly satisfactory and 16.4% has rated 'satisfactory'. College students (0.1%) have rated 'highly dissatisfactory' and none of them have rated the suitability of the design as 'highly dissatisfactory'
- Fashion designers, faculty members and students of the fashion designing field (81.2%) has endorsed the efficacy of design library as a teaching aid as 'highly effective'. Neither faculty members nor fashion designers have the rated the efficiency of design library as teaching aid as 'ineffective' or 'highly ineffective'
- The operating of the design library was rated as 'very easy' and 'easy' by a majority of 88% and 9.9% of the evaluators respectively. It is very interesting to note that 97% and 3% of the computer illiterates has rated 'very easy' and 'easy' respectively
- It is clear that the evaluators (83.7%) felt that the presentation of garment styles in the 3D form was extremely appealing and 12.4% of them have felt it is very appealing.
- The overall rating (88.8%) for the viewing of garment design in all angles is 'highly satisfactory'. Ten percent of the respondents have rate the viewing as 'satisfactory'. The opinion 'highly dissatisfactory was rated by none of the respondents.
- The replacement of catalogs with 3D designs in the shops for the selection and purchase of garments was evaluated as 'highly effective' and 'effective' by 85.9% and 2.1% respectively. The textile / garment manufacturers (0.1%) felt it is ineffective. None of the respondents chose to rate 'highly ineffective'.

- The respondents have remarked that the design library in the 3D form is very good, creative and impressive. Textile and garment manufacturers suggest that the designs should be viewed more closely, prints to be seen in a larger size. Textile and garment showrooms and computer professionals recommend for a naturalistic movements in the fabric and the mode.
- The library has won wide appreciation from the viewer of the library in the website. Suggestions given for improvement include viewing of the fabric and model with naturalistic movements and to add more clarity.

Conclusion

Garment designs like Saree and Blouse are a treasure to cultural heritage and storing them in the digital format will definitely a boon to the generations to come. The concept of 3D designing was widely acknowledged by all groups of people and hence this may serve as replacement for the catalogs used in the retail showrooms, textile / garment manufacturers. The design library will enrich the knowledge of the fashion design students and may serve as an effective teaching aid in the near future. Computer illiterates and computer professionals were immensely pleased with the concept and are looking forward to view in the retail shops in the future. The storage of library in the digital format will definitely help the future generation to view the rich and cultural heritage of Indian garment styles and traditional Indian fabrics.

Recommendations

- The 3D designing may be reproduced with movements in the fabric and the human model for a naturalistic presentation.
- This concept can be applied for other women's garments, men's garments and children's garments.