

Fashion Projection Mapping Using Basic Modeling Form

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Abstract. This study produced motion graphics as an application of basic modeling form design in fashion design and creates a media art work via projection mapping of the motion graphics to a torso thereby aiming at learning a sense of basic modeling form and producing a media art in fusion of fashion and media. Kandinsky (1979), in his book 'Point and Line to Plane', suggested that a variety of changes in the most basic formation of modeling can be made by changes in formation, changes in orientation and direction, structural finesse, utilization of space, inter-connected relationships in processing of corner vertices, changes and colors due to repetition, and basic modeling form theory through contrast sense of materials. This basic modeling form theory is studied to develop comprehensive thinking skills into fashion design sense by learning overall unity and harmony and the principle of Gestalt (closure, proximity, similarity) as students perform tasks that present various modeling form conditions step by step using abstract points and lines in fashion design in a process of concept, development, and fashion design application. In this study, motion graphics images are created using plane designs in basic modeling form thereby adding interactive elements to basic modeling form so that two-dimensional (2D) images are re-structured into three-dimensional (3D) works by utilizing projection mapping. A torso, which is a human model used in clothing and textiles, is set as a target of projection mapping to experience processes of conception, development, and application in basic fashion design. This study is a step prior to application of interaction technology, and software called Adobe After Effects was used to display images in the torso. This study is focused on understanding on basic modeling form, development of design sense, and stereoscopic design rather than skills required for works. Through interaction functions via upgrades, this study will be utilized in media work, show-windows in dress shops or fashion shows in future.

Keywords: Kandinsky · Digital fashion · Projection mapping · Basic design

1 Introduction

This study aimed to harmonize two fields: fashion design and video design that are my majors. The two fields seemed totally different subjects but there was no significant difference between them in terms of foundational subjects, and one of fashion design methods used in fashion design was applied to video design. Next, videos were applied to fashion design.

History of design starts from structuring points, lines, and surfaces. Point means beginning. It is the simplest form from which art starts. Line is made by numerous points and symbolizes time flow and history. Multiple lines create a surface. In other words, a surface is a completion of point. All paintings are complete in a surface state. However, the meanings of point, line, and surface were disintegrated in the era of media art. In this project, the meanings of point, line, and surface using projection mapping were re-considered, and extension of new meanings of point, line, and surface were pursued.

2 Basic Design and Fashion Design

2.1 Conception

Jungmee Cho developed a basic design curriculum for fashion design education. She divided a task of step-by-step presentation of various design conditions using abstract points and lines into three phases: a conception phase at basic plane, a development phase into a costume application, and fashion design application phase in which student's own work is substituted with existing designers works. Through this task, students learn design elements and overall unity and harmony in design principles as well as the principle of Gestalt thereby aiming at increase in comprehensive thinking skill and development into fashion design sense through practical exercises.¹

A basic plane refers to physical surface (screen) that contains work contents defined by Kandinsky (1926 to 2008) (frame space).² Schematic basic plain is limited by two horizontal lines and two vertical lines thereby expressing independent essence in the surrounding area by means of the division. Thus, a basic plane helps students to concentrate on modeling form without thinking effects of other conditions in the limited area. In this phase, a rectangular basic plane (15*20 cm) is used. Using points and lines, basic plane design is performed, and this is divided into sub-phases according to conditions of the number of diagrams, orientation, overlapping, shape, and texture. This phase follows the instruction from the «Development of Contents in Fundamental Design Education for Fashion Design» (Jungmee Cho 2010).

It was designed with the following conditional steps such as a size of point, whether or not point is located in the borderline, the number of points, overlap of points, point shape, and point texture. Fig. 1 shows typical parts of total work.

¹ Cho, J.: Development of Contents in Fundamental Design Education for Fashion Design, Journal of the Korean Society of Clothing and Textiles vol.34, no.8, pp.1265–1276 (2010).

² Kandinsky, W.: Point and Line to Plane. Yeolhwadang, Korea (2004).

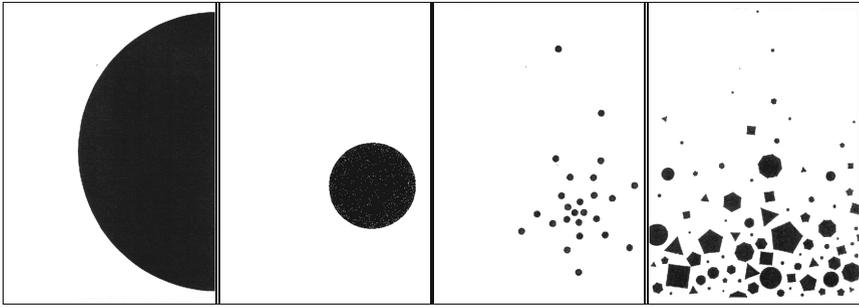


Fig. 1. Basic plane design using points

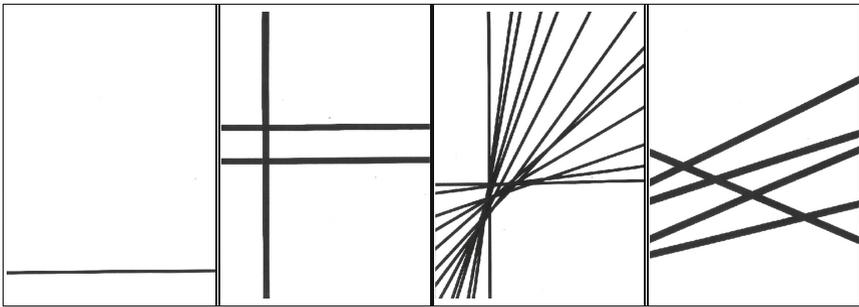


Fig. 2. Basic plane design using lines

It was designed with the following conditional steps such as thickness of line, direction of line, the number of lines, and disconnection or stop of line. Fig. 2 shows typical parts of total work.

2.2 Development

In fashion design, plane silhouette in a form of basic one-piece is used. However, in this study, motion graphic animation is produced using After Effects and Cinema4D, which are graphic software. In this phase, a rectangular basic plane (720*1280p) is used. In this phase, movements of diagrams and background music are added thereby having a rhythm even if it is based on the prior conception phase. As design elements are moved in an image, motion, weight, space in a plane can be felt realistically.

The following conditional steps such as a size of point, whether or not point is located in the borderline, the number of points, overlap of points, point shape, and point texture are arranged in time thereby changing them in the motion graphics. Fig. 3 is a captured one as a typical parts of total work.

The following conditional steps such as thickness of line, direction of line, the number of lines, and disconnection or stop of line are arranged in time thereby

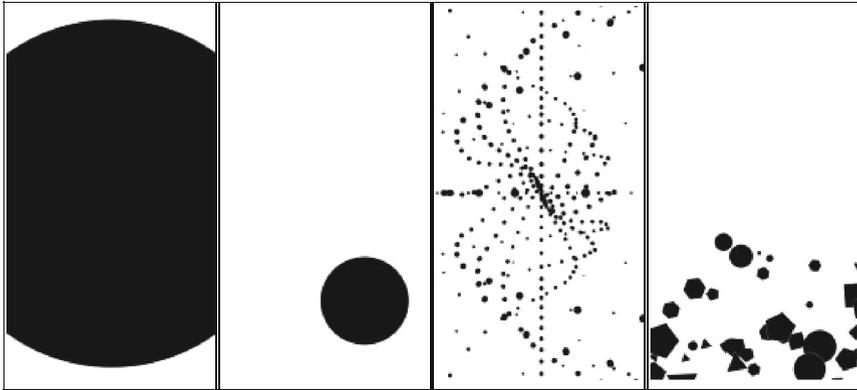


Fig. 3. Motion graphic capture based on motif of the basic plane design in Fig. 1

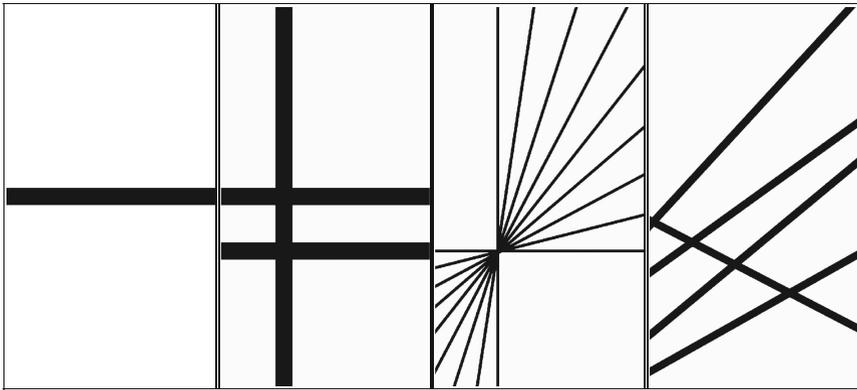


Fig. 4. Motion graphic capture based on motif of the basic plane design in Fig. 2

changing them in the motion graphic. Fig. 4 is a captured one as typical parts of total work.

2.3 Application

The fashion designs were made by drawing designs directly on picture works of existing fashion designers or mapping the designs using Adobe Photoshop. In this study, instead of the above process, a torso, which is a human model used in fashion design, is targeted for mapping using a beam projector. It is a process of development from 2D to 3D. Designs were applied to a human body which was indirectly felt via photos using projection mapping, and thus it looks more stereoscopic and realistic. This application leads to developing into media art works (Figs. 5 and 6).

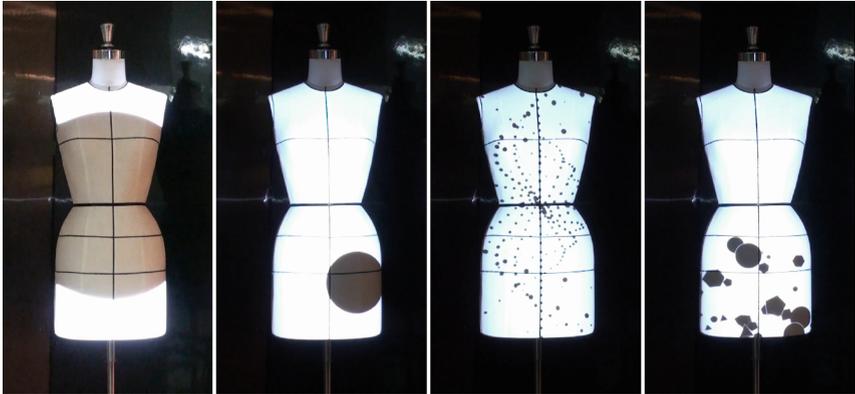


Fig. 5. Capture of projection mapping work video of the motion graphic in Fig. 3



Fig. 6 Capture of projection mapping work video of the motion graphic in Fig. 4

3 Conclusions and Future Research

This study was aimed at developing fusion of three fields: fashion design, video design, and media art. The study applied fashion design using basic modeling form to new media via projection mapping to complete a work. This study was conducted with three phases: conception, development, and application. In the conception phase, various basic design principles and concepts were learnt through the basic plane design thereby providing a foundation to progress into a higher level of design process. In the development phase, designs made in the prior phase were utilized to be developed into motion graphic images thereby adding senses of motion and space. In the application process, motion graphic images were projected to a torso by utilizing projection mapping thereby re-creating 2D images into 3D works.

This study is a stage prior to interaction technique application and is focused on understanding on basic modeling form, development of design sense, and stereoscopic design rather than skills required for works. In the future, interactive works can be produced by utilizing processing techniques via upgrade. Audience can set up points, line color, shape, and sizes by themselves thereby experiencing creative and exciting design development. This study can also be utilized in show windows in dress shops or fashion shows.

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