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**A SYSTEM OF DIGITAL VISUAL MERCHANDISING FOR  
INNOVATIVE TEXTILES AND FASHION**

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**PhD**

**The Hong Kong Polytechnic University**

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**The Hong Kong Polytechnic University**

**Institute of Textiles and Clothing**

**A System of Digital Visual Merchandising for Innovative Textiles and Fashion**

**Peng Qingxin**

**A thesis submitted in partial fulfillment of the requirements for  
the degree of Doctor of Philosophy**

**September 2020**

## **CERTIFICATE OF ORIGINALITY**

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## **ABSTRACT**

The purpose of this research study was to establish a digital visual merchandising model for innovative textiles and fashion. This study focused on three major objectives, a) to complete a theoretical study and empirical research on digital visual merchandising and innovative textiles and fashion; b) to identify the design factors in digital visual merchandising design; c) to develop a model of digital visual merchandising design to promote innovative textiles and fashion.

In order to establish the model, a qualitative research methodology was adopted in the study that employed the inductive approach in the development of the model. Theoretical study and empirical research were conducted focusing on digital visual merchandising theories, including the visual merchandising design strategies and factors affecting visual merchandising performance. A series of case studies in offline and online formats related to the textile and fashion merchandising were processed by on-site observation and document review to collect data for coding. Potential design factors in digital visual merchandising were identified by coding the collected data and verified in the offline and online implementations.

The aimed model of digital visual merchandising design has been established in this study. The roles of the identified design factors in the digital visual merchandising design process have been revealed. The results suggest that the performance of digital visual merchandising may be affected by the design factors of concept formation, layout design, ambient condition,

interactivity level and visual complexity level. The designer can control the identified design factors in digital visual merchandising design by forming the concept according to the features of the textiles and fashion, designing reasonable layout, adjusting the stimuli set in the ambient condition, and adapting the interactivity level and visual complexity level. With the established model, innovative textiles and fashion can be promoted through digital visual merchandising design in both offline and online formats.

## RESEARCH OUTPUTS

### Organised Fashion Show and Exhibitions

- *LOOK LOOP: Transitional Knitting – Research Work by Yishu Yan*, Start on 18 June 2020, The Fashion Gallery, Hong Kong **[as curator]**
- *Kinor Jiang: Cloth / Landscape*, 14 April – 24 June 2019, The Fashion Gallery, Hong Kong **[as assistant curator]**
- *Youth and Beauty – Research of Qipao and Textiles in Republic of China by GONG Jianpei*, 18 January – 14 March 2019, The Fashion Gallery, Hong Kong **[as assistant curator]**
- *Self-Organisation: Junichi Arai's Textile Anthology*, 16 December 2017 – 26 January 2018, Innovation Gallery and The Fashion Gallery, Hong Kong **[as assistant curator]**
- *Encounter Art and Technology by Guangdong Rising Well Science and Technology Co., LTD*, Functional Textiles Technology Summit, 7 July 2017, Foshan, Guangdong, China **[as assistant curator]**
- *Wearable Art – New Beat: International Student Competition*, 10<sup>th</sup> International Shibori Symposium, 5 - 30 September 2016, The Fashion Gallery, Hong Kong, 15 - 20 November 2016, Centro Cultural San Pablo, Oaxaca, Mexico **[as assistant curator]**

### Edited Books

- (Submission) Peng, Q.X., (Expecting 2023). Promotion Innovative Textiles Employing Digital Visual Merchandising as Tool, Volume Bloomsbury Encyclopedia of World Textiles

- Self-Organisation: Junichi Arai's Textile Anthology. (2017). The Hong Kong Polytechnic University, Hong Kong. ISBN 9789623678148 *[as editor]*
- Wearable Art – New Beat: International Student Competition. (2017). The Hong Kong Polytechnic University, Hong Kong. ISBN 9789623678049 (print), 9789623678049 (electronic) *[as editor]*

### **Professional Journal Papers**

- Jiang, S.X., **Peng, Q.X.** (2020). Starting from Design Origin: Development of Metal-coated Textiles Technology, Art & Design, Tsinghua University Press, January 2020, Volume 321, page 28 – 31. ISBN: 9770412366209.
- **Peng, Q.X.** (2018). Metallic Sound: Hometown of Gambiered Canton Gauze in 2018 Chine Fashion Week, China Textile, Volume 12, page 52 – 53.

### **Conference Papers**

- (Submission) **Peng, Q.X.**, Jiang, S.X. (2021). Improving Learning Experience Through Practitioner-research: A Student-led Implementation of Presenting Creative Textile and Fashion Designs Digitally, HEAd'21, 22-23 June. Universitat Politecnic de Valencia, Valencia, Spain.
- **Peng, Q.X.**, Jiang, S.X., Shang, S.M., Miao, D.G. (2019). A review on visual merchandising design contents and layouts in branded fashion websites, 10<sup>th</sup> Cross-Strait Conference of Textiles, 18 – 19 May. The Hong Kong Polytechnic University, Hong Kong, China. p. 73.

- **Peng, Q.X.**, Jiang, S.X., Shang, S.M., Miao, D.G. (2018). The Study about How to Promote Innovative Textiles and Fashion with Digital Visual Merchandising, 9<sup>th</sup> Cross-Strait Conference of Textiles, 18 – 21 May. Jiangnan University, Wuxi, Jiangsu, China. p. 183. *[Received Excellent Paper Award]*
- **Peng, Q.X.**, Shang, S.M., Jiang, S.X. (2017). The Study of the Digital Visual Merchandising for Niche Brands and Its Impact on the Brand Development, 14th Asian Textile Conference, 27 – 30 June. The Hong Kong Polytechnic University, Hong Kong. Proceedings Volume II, p.110 – 113, ISBN: 978-988-13999-4-6; e-ISBN: 978-988-13999-5-3.

### **Participated Exhibitions**

- *Floating Sand*, New Beat International Student Competition, 11<sup>th</sup> International Shibori Symposium, 07 – 15 July 2018, Tohoku University of Art and Design, Japan
- *Floating Sand*, Surface Design in Fashion – Works by Professor Kinor Jiang and Collaborators, 18 January – 8 February 2018, Jill Stuart Gallery in Cornell University, USA
- *RORED*, Art Al Vent XIV, 7 August – 1 September 2017, Gata de Gorgos, Spain
- *MX+HK*, Fashion Parade, Rebelles – 2016 Festival of Extra Ordinary Textile, 24 September 2016, Place de la Victoire, Clermont- Ferrand, France

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## **CHAPTER 1      INTRODUCTION**

### **1.1 Background**

Visual merchandising (VM), being a promotion mix, is a crucial support to retailing strategy to attract consumers' attention and arouse purchase intention (Bell and Ternus, 2017; H. H. Park, Jeon, and Sullivan, 2015). It combines communication tools including the advertising, in-store marketing, special event and personal selling to tell target consumers about the merchandise (Bell and Ternus, 2017). Traditional visual merchandising considers two design perspectives, which are store design and product display (McGoldrick 1990) in order to stage product experiences and capture audiences' attention. Consumers clearly express both cognitive and affective behavioural responses to visual merchandising (Buchanan, Simmons, and Bickart, 1999), which means that effective visual merchandising can help consumer form a perception of a product and evoke their interest and motivate additional in-store merchandise exploration (M. Cant and Y. Hefer, 2012). Optimising the visual merchandising plan and correctly executed may increase product sales and profits (Banerjee and Yadav, 2012; J. Kim, 2013; Mehta and Chugan, 2013).

Due to the changing lifestyles, consumers changed from solely traditional in-store shopping to purchase both offline and online. There is a high demand for modifying merchandising strategies for fashion industry to capable display the merchandise according to the changes and then to increase the sales. However, the research about visual merchandising remains in-store merchandising or website merchandising. There was no study systematically showing

how to communicate with consumers in digital languages effectively and to display the merchandise visually and aesthetically, which can arouse consumers' emotional responses, deep the brand impression and finally be willing to purchase the products. The situation of the online visual merchandising is disordered; the presentation methods and contexts employing digital tools like website, fashion film, social media are still needed to explore further.

Based on the preliminary research, “innovative textiles and fashion” is a broad concept to describe the new emerging textiles or fashions. The typical features of innovative textiles and fashion are new designed and unknown to the consumers. Therefore, it should face the issues of how to introduce the innovative textiles and fashion effectively and make them to be accepted by the consumers quickly. In this context, digging into the characteristics of innovative textiles and fashion and employing effective visual merchandising techniques to promote them is necessary to investigate. A concept of applying digital visual merchandising (DVM) to designs in order to enhance the presentation about innovative textiles and fashion effectively was proposed to fill up the gap.

Digital visual merchandising is a branch stemmed from the traditional visual merchandising employing digital tools to display the merchandise. The visual merchandising strategies were studied by two sections. The first section was the design strategies related to how to form a visual merchandising design, which may help identify the influential design factors in the digital visual merchandising design process. The second section was to figure out the factors affecting the visual merchandising design performance. On the other side, the application

potentials of digital tools such as image, video, eBook, and interactive installation were explored and integrated in the implementations. The trial results may be the references to the promotion of innovative textiles and fashion, which may facilitate to the brand experience and have impacts on purchase intention. The relationships of each section are demonstrated in the Figure 1-1.

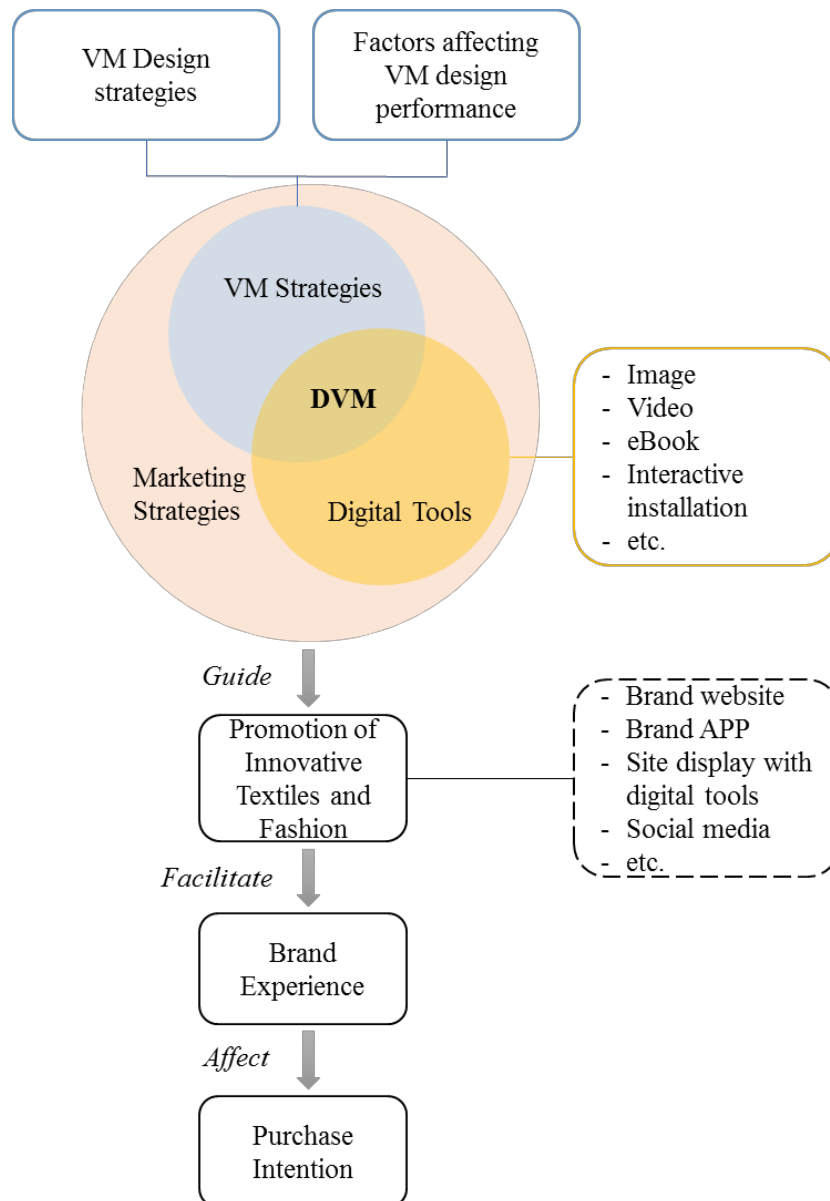


Figure 1-1: Research Scope Map

## 1.2 Objectives

This project aims to propose a digital visual merchandising model for introducing and promoting innovative textiles and fashion. The research was undertaken to identify the digital visual merchandising design factors and design contexts, which focused on the theoretical study and practical design of digital visual merchandising and presented through offline and online ways. The established model might be a guide for developing digital visual merchandising designs in innovative textiles and fashion promotion purpose.

The main objectives of this study are summarised as follows:

- 1) To complete a theoretical study and empirical research on digital visual merchandising and innovative textiles and fashion through visual merchandising strategies, affecting factors in presentation performance, a series of case studies in offline and online formats, and investigation of innovative textiles and fashion;
- 2) To identify the influential design factors of digital visual merchandising design in order to develop a digital visual merchandising model for innovative textiles and fashion promotion;
- 3) To apply the conceptual model into digital visual merchandising implementations to improve and ground the model that reveals the impacts of design factors on digital visual merchandising process and performance.



### **1.3 Methodology**

In order to achieve the objectives of the research, a qualitative research methodology that employed the inductive approach in the development of the grounded theory was adopted in this study. The research design of this study combined on-site observation and document review of case studies to code the design factors and formulated the grounded model of digital visual merchandising design for innovative textiles and fashion.

The research consisted of a seven-step methodological procedure (Figure 1-2). The first step was to conduct a theoretical study on digital visual merchandising theories and innovative textiles and fashion. A series of empirical research about the existing offline and online digital visual merchandising cases were on-site observed or reviewed in the second step. Open coding was conducted in this step according to the designed checklists for offline and online cases, respectively. With the results of theoretical study, cases analysis and coding results, the third step was to identify the digital visual merchandising design. In the fourth step, a conceptual design model was proposed based on the previously studied theories and integrating design factors. The fifth step was to implement the model into practical designs in offline and online formats and interpret the design contexts underlying each design factor. The model was further improved according to the design outcomes in the sixth step. A conclusion was summarised in the final step.

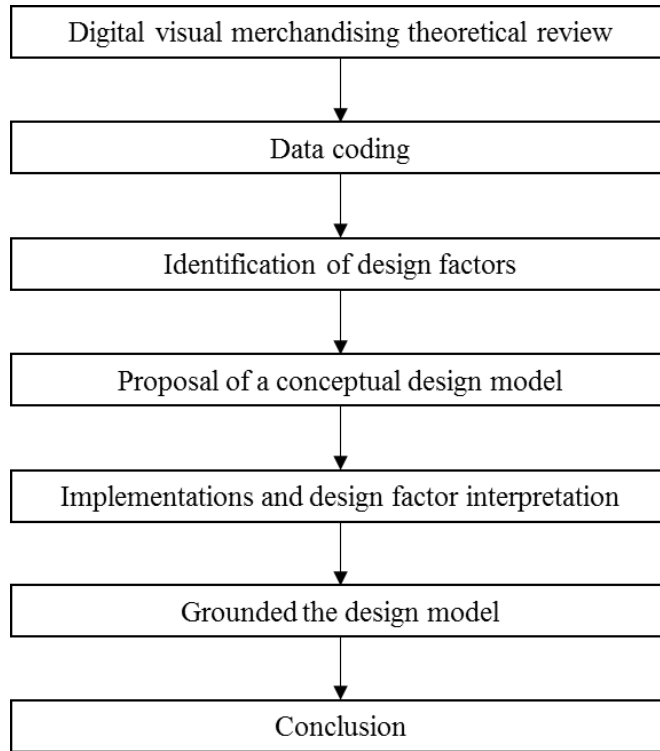


Figure 1-2: Procedures of Research

In order to have an in-depth understanding of influential design factors and design contexts in digital visual merchandising design, the offline and online cases for the study were selected from different perspectives in order to expand the diversity of samples. The selection criteria were mainly based on the merchandising purposes, themes, and presentation approaches. The collected data (evidence of case studies) was analysed with the steps of data sorting, open coding, comparative analysis, theoretical coding and presentation of analysis. The analysis results were the base for the model building. By implementing the model into the practical design in both offline and online digital visual merchandising designs, the design factors and contexts were verified and formulated. Finally, the model of digital visual

merchandising design integrating design factors was established for innovative textiles and fashion.

#### **1.4 Significance and Value**

This study has developed a methodology for the digital visual merchandising design for promoting innovative textiles and fashion. The originality of the research included a systematic investigation of digital visual merchandising design, implementation results to introduce and promote innovative textiles and fashion and a promoted digital visual merchandising design model.

The research conducted a comprehensive investigation of digital visual merchandising theory including design matters, design processes, design factors, design forms and technologies. Factors affecting the performance of digital visual merchandising design were studied from the perspectives of information management and psychological effects. The principles of digital visual merchandising and their relationships and impacts on the digital visual merchandising design have been explored. Moreover, the different digital visual merchandising presentation approaches and their efficiency and application areas have been compared and analysed.

A design model containing influential design factors in the digital visual merchandising design process has been established. Design matters of institutional advocacy, subject matter advocacy, audience advocacy and design advocacy have been elaborated through the theoretical reviews. The design factors of concept formation, layout design, ambient

condition, interactivity level and visual complexity level have been identified through the qualitative case studies coding, analysis, and verifications in implementations. The framework and relevance of the design matters and design factors have been discussed and analysed as well.

The implementations of the design model may provide a solution for the fashion industry to introduce and promote the latest products, in offline and online formats, employing digital visual merchandising strategies. The study verified the possibility and feasibility of applying digital visual merchandising for innovative textiles and fashion promotion. It may be helpful to fill up the gaps of promoting innovative textile and fashion products effectively and launching them in the market.

### **1.5 Structure of the Thesis**

Chapter one, “Introduction”, the first chapter of the thesis introduces the outlines of the study including the general background, objectives, methodology, significance and value of the research and a plan of the thesis.

Chapter two, “Literature Review”, provides a theoretical framework of digital visual merchandising design for innovative textiles and fashion focusing on visual merchandising theory, factors affecting digital visual merchandising design performance and innovative textiles and fashion. The review presents the case studies on digital visual merchandising in offline and online formats. It also describes the impacts of digital visual merchandising on increasing brand experience.

Chapter three, “Methodology” introduces the qualitative research methods employed in the study. The methods of on-site observation and document review have been used to collect raw data. The collected data has been analysed with the steps of data sorting, data coding, comparative analysis, theoretical coding and presentation analysis in order to identify the design factors in digital visual merchandising design and propose a conceptual model.

Chapter four, “Implementations and Interpretation”, presents total three implementations of digital visual merchandising applying the proposed conceptual model. Two offline implementations and one online implementation have been selected for the report. With the discussion and analysis of the implementation results, the design factors in digital visual merchandising have been verified and interpreted, which are concept formation, layout design, ambient condition, interactivity level and visual complexity level.

Chapter five, “Conclusion”, summarises the investigative work involved in the study. Based on the implementations and interpretation of the design factor, a grounded model of digital visual merchandising has been established. An overall conclusion of the major findings obtained in this study are summarised. The recommendations of further research are suggested as well.

## **CHAPTER 2      LITERATURE REVIEW**

### **2.1 Introduction**

Digital visual merchandising is a party involved in visual merchandising discipline, which helps present the merchandise in the digital world and is a tool to strengthen the presentation in offline scenarios. In order to understand and define the extent of digital visual merchandising design, it is necessary to review the theories of visual merchandising, that reveal the principles for applying visual merchandising better. Theories suggested the general natures of digital visual merchandising and its design process made it possible to outline the relevance of literature in this study. As this research study aimed to promote innovative textiles and fashion through digital visual merchandising design, the characteristics of innovative textiles and fashion were discussed and summarised as well. Representatives of innovative textiles and fashion were demonstrated in this chapter. Furthermore, a series of offline and online cases were studied and discussed to understand the current visual merchandising techniques, forms and available digital tools. From this literature review, both the theoretical studies and empirical studies were used to analyse to help detect the design factors that might influence the digital visual merchandising design outcome and performance.

## **2.2 Theoretical Framework of Digital Visual Merchandising Design for Innovative Textiles and Fashions**

Many investigations had been conducted to explore the relationships among visual merchandising techniques, consumer responses and purchasing intention, which are the theoretical foundations for the project. Previous studies focused on three perspectives, including the techniques for store atmosphere creation (Eroglu, Machleit, and Davis, 2001; Turley and Milliman, 2000), techniques for merchandising display (Kerfoot, Davies, and Ward, 2003), and visual appeals such as pleasing design, aesthetic preferences, and overall appearance performances (S. Kim and Stoel, 2004; Mathwick, Malhotra, and Rigdon, 2001). The atmospheric environment in-store is thought to be relevant to visual merchandising expression. Store atmosphere consists of three dimensions that are social (e.g., consumers), design (e.g., visual cues) and ambient factors (e.g., lighting) (Eroglu et al., 2001). The critical features in the traditional merchandising display are identified as layout (Larson, Bradlow, and Fader, 2005), fixture (Donnellan, 2014), merchandise (Davies and Ward, 2002), presentation technique (Buchanan et al., 1999), and colour (Kerfoot et al., 2003).

### **2.2.1 Visual Merchandising Theory**

#### **2.2.1.1 The Concept of Digital Visual Merchandising**

Visual merchandising is a mature theory for in-store merchandise display. Using visual language to promote products in-store was developed since the nineteenth century when the visual display of goods became necessary (Carlson, 2012). Some dry goods establishments like Marshall Field and Co. wanted to shift their business from wholesale to retail, in order to attract consumers. At that time, the store windows were the main area that retailers used to

display the store's merchandise attractively. Over time, the aesthetics designed in window displays moved indoors and became a part of the overall interior store design, eventually reducing the use of display windows in many suburban malls (Costume and Strege, 1999).

The definition of traditional visual merchandising is a process of promoting the sale of products by producing mental images that urge potential customers to make purchases (Bell and Ternus, 2017). The phrase “visual merchandising” can be understood through two parts, that the adjective word “visual” relates to images that are taken into the brain by eyes, while the noun word “merchandising” is described to promote the sale of certain commodities.

The functions of visual merchandising can be summarised as an efficient tool to display products and service width by adding visual excitement and impact. With visual merchandising, the brands can attract the consumers, communicate the brand identity to consumers and increase the profile of the brand effectively. The shopping experience can be designed by appealing to the consumers and transferring to increase sale volume through influential visual effects and an enjoyable atmosphere. In most times, a compelling visual merchandising is also an excellent opportunity for brand promotion and products advertisement.

Visual merchandising has become a powerful tool for business promotion and has been widely used in physical stores now. With the development of digital technology, online shopping has become the main shopping channel. More retailers have moved their attention to the visual merchandising in the digital world. As shown in Figure 2-1, the luxury fashion



house Stella McCartney has employed digital visual merchandising (i.e., video walls) for its Spring Summer 2018 window and displayed in 11 flagship stores across Europe, the US and Asia (Campos, 2018). Digital visual merchandising has been stemmed from the traditional visual merchandising and is bringing visual merchandising to a new level. The digital visual merchandising can be completed through the brand official website, mobile applications and other digital platforms which enjoying the advantages in the integration of brand style, efficiency, and convenience.



Figure 2-1: Video Wall Presented at Stella McCartney Flagship Store

(Adapted from “Stella McCartney adopts LG digital signage mosaics”, by Campos, G, 2018.

[https://www.avinteractive.com/news/digital-signage/stella-mccartney-launches-collection-lg-](https://www.avinteractive.com/news/digital-signage/stella-mccartney-launches-collection-lg-digital-signage-18-04-2018/)

[digital-signage-18-04-2018/](https://www.avinteractive.com/news/digital-signage/stella-mccartney-launches-collection-lg-digital-signage-18-04-2018/))

### **2.2.1.2 Visual Merchandising Design Strategies**

Much research has conducted research about the visual merchandising strategies in physical stores. The strategies stated here start from the visual merchandising designing elements in physical stores and gradually transferring to the development of the digital visual

merchandising, which can be employed in offline and online formats to promote innovative textiles and fashion.

### 1) Visual Merchandising Design Matters

For both traditional visual merchandising and digital visual merchandising, the design should hold a theme, which can be further developed in detail. According to Bailey and Baker (2014), there are 25 most used themes in traditional visual merchandising design. These themes are also applicable to the digital visual merchandising design, which have been presented in Table 2-1.

Table 2-1: Visual Merchandising Themes

<b>Sale campaign</b>	<b>Cultures</b>	<b>Social issues</b>	<b>Technologies</b>	<b>Design elements</b>
Seasonal	Fashion	Sustainability	Lighting	Conceptual
Sale	Theatrical	Charity	Digital media	Graphics
Promotional	Narrative	Political/parody	Humour-led	Text
Product-led	Lifestyle	Sex	Animatronics	Design
Trends	Heritage Vintage and antique		Live window	Colour

Further classifying the themes for visual merchandising, four design matters of the digital visual merchandising design for innovative textiles and fashion were summarised, namely “institutional advocacy”, “subject matter advocacy”, “audience advocacy” and “design advocacy”. The definition of each design matter has been displayed in Table 2-2.

Table 2-2: Design Matters in Digital Visual Merchandising Design

Design matters	Definitions
Institutional advocacy	This advocacy focuses on utilising the digital visual merchandising design as a mean for the institution promotion (i.e., fashion/textile brands, fashion/textile designers). The merchandising design advocates from this perspective should have a clear idea of how this merchandising design fits into the greater scheme of things and know why it is crucial for the organisation.
Subject matter advocacy	This advocacy focuses on innovative textiles and fashion planned to promote. It should be able to identify the most important aspects of the presented textiles and fashion from the professional point of view and help prioritise message in order to edit out the less salient aspects of the merchandising content.
Audience advocacy	This advocacy focuses on establishing the merchandising design based on the notion that knowledge of the audience studies in order to increase audience experience. This advocacy will have to involve thinking about the experience of the audience will have and setting both cognitive and affective goals for that experience.
Design advocacy	This advocacy focuses on the merchandising design itself. In general, it is discussing how the physical and sensory aspects of the ultimate space serve to support and enhance the overall cognitive, affective, and experiential goals to the merchandising design. It is not only about how the design can be set visually pleasing the audiences but also relates to how comfortably it functions as an environment (both physically and virtually), how interesting it is, how audiences are drawn into the thoughts.

## 2) Visual Merchandising Design Processes

### *Visual Merchandising Lifecycle*

Bailey and Baker (2014) proposed a visual merchandising lifecycle in book *Visual Merchandising for fashion*. The creation lifecycle of generating and implementing visual merchandising schemes varies based on the supplier lead times, delivery dates, trading and marketing calendars. On average, a window scheme in traditional visual merchandising should be changed every 5-8 weeks in a large retail business. Smaller stores and micro changes occur every 1-2 week in order to refresh the look of merchandising display.

For digital visual merchandising, the lifecycle period can be shortened, and the merchandising design can be more flexible. A simplified digital visual merchandising lifecycle has been developed from the traditional visual merchandising lifecycle (Figure 2-2). The process to form a visual merchandising has been simplified from 12 steps to 9 steps. If the whole process is in a digital environment, those steps need to use physical tools like mannequins and fixtures can be moved out from the digital visual merchandising lifecycle. It should be admitted that the developed lifecycle is not mature and may need to be further improved based on the design results. The comparison of the two lifecycles has been illustrated in the figure.

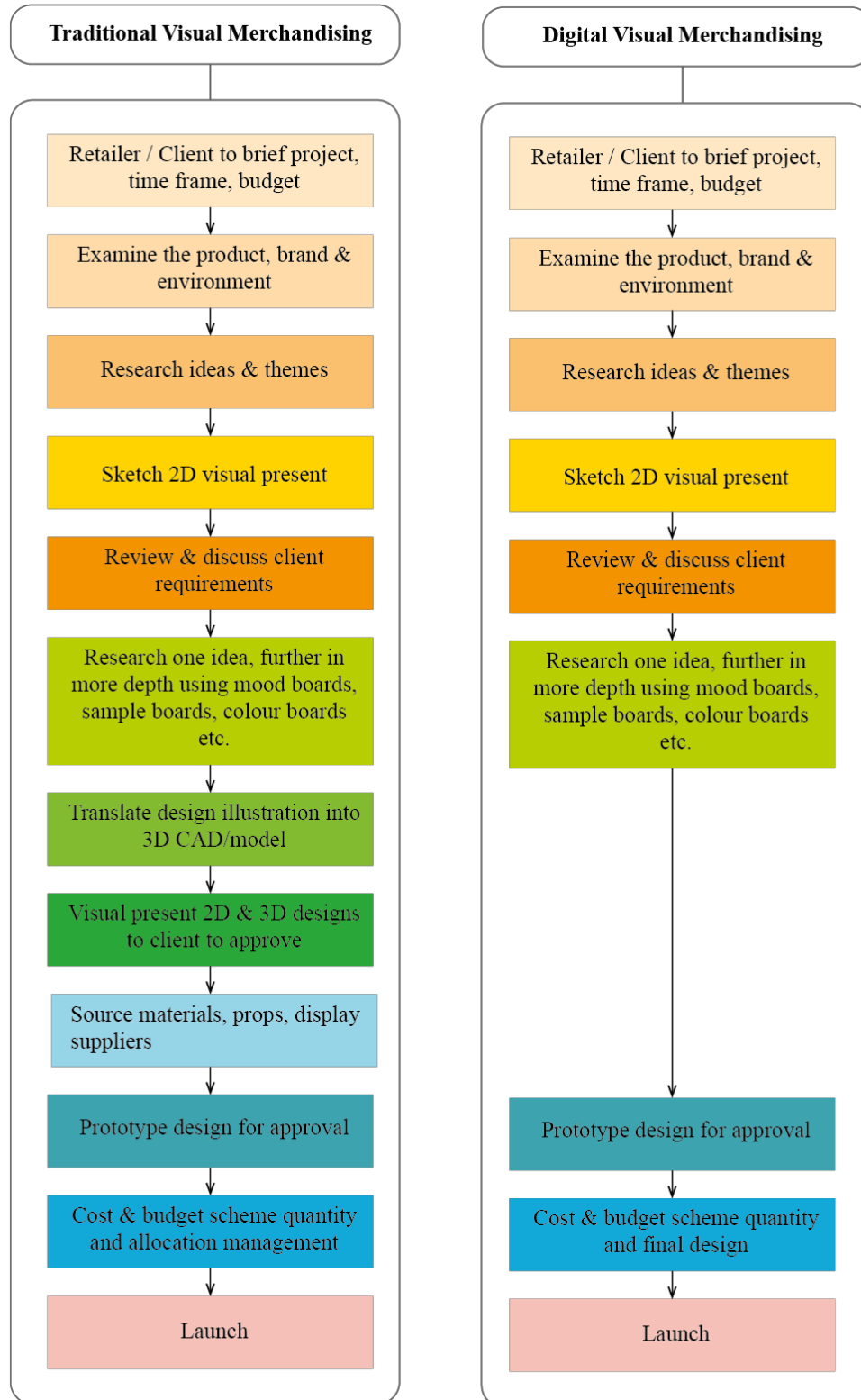


Figure 2-2: Comparison of Traditional Visual Merchandising Lifecycle and Digital Visual Merchandising Lifecycle

### **Design Process Models Applicable for Digital Visual Merchandising**

After reviewing of many design process models established in other design fields, some design process models developed from the engineering design and exhibition design that applicable to create digital visual merchandising have been selected to study in this section.

#### *A. Nigel Cross Four-stage Design Process*

Nigel Cross (2001) developed a four-stage design process from the perspective of engineering design (Figure 2-3). It describes the design process based on the essential activities that the designer performs. It starts from the exploration and detects the problems that may encounter in the design. Then, a concept will be generated by the designer and aims to solve the detected problems. In the evaluation process, the design proposal will be evaluated to check if it is against the objective, constraints and criteria of the design brief. The process ends at the communication stage, which the design will be ready for manufacturing.

This model can be applied in the digital visual merchandising because the design process from concept formation to implementation is similar. The investigation of the textiles and fashion can be regarded as the exploration and problem detecting phase. The concept formed to solve the detected problem can be the digital visual merchandising design plan to present and promote textiles and fashion. After the merchandising settled, it should be reviewed and adjusted before releasing to the public that will be the evaluation phase. Once the digital visual merchandising published to the public, the merchandising design is a communication media between the textiles/fashion and the audiences.

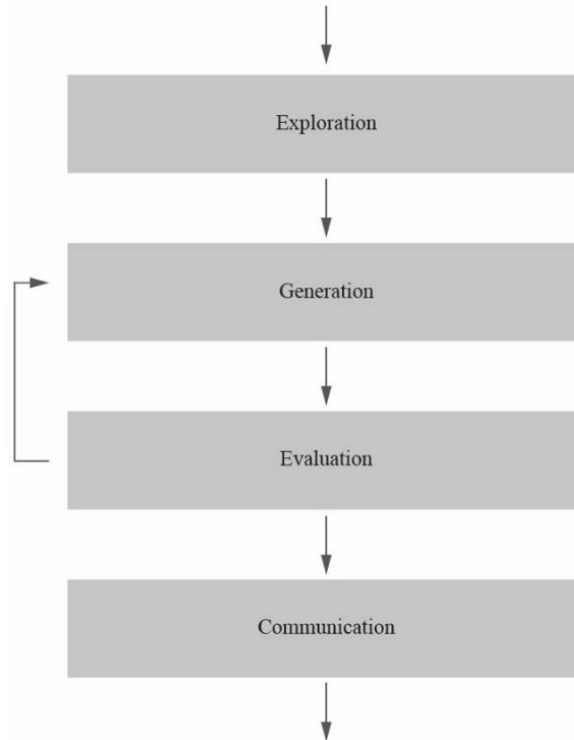


Figure 2-3: Nigel Cross's Four Stage Design Process

(Adapted from “Design cognition: Results from protocol and other empirical studies of design activity” by Cross, N., 2001)

#### *B. Discovery Centre Work Stage Model (DCWS)*

Discovery centre work stage model is a design process model for museum exhibitions, which involves the design process, tasks and predictable outputs. It initially developed in 1998 by MET Studio design consultancy (Lin, 2009). The model describes a detailed conceptual framework for the development of ideal circulation, layout and key vistas. Moreover, the model describes a complete criterion for the design process that is connected with the design methodology and management strategy for developing the project. It concerns with detailed job criteria, responsibility and specific detailed working guidelines (Figure 2-4). The model divides the project work into four categories, which should be covered in the design process.

- Conceptual framework: including project objectives, services contents, and communication and interpretation strategies;
- Specifications: including information technology such as computer programmes;
- Job description: the specific working tasks of the project participators;
- Specific descriptions: details of each working stage and guidelines for an exhibition proposal.

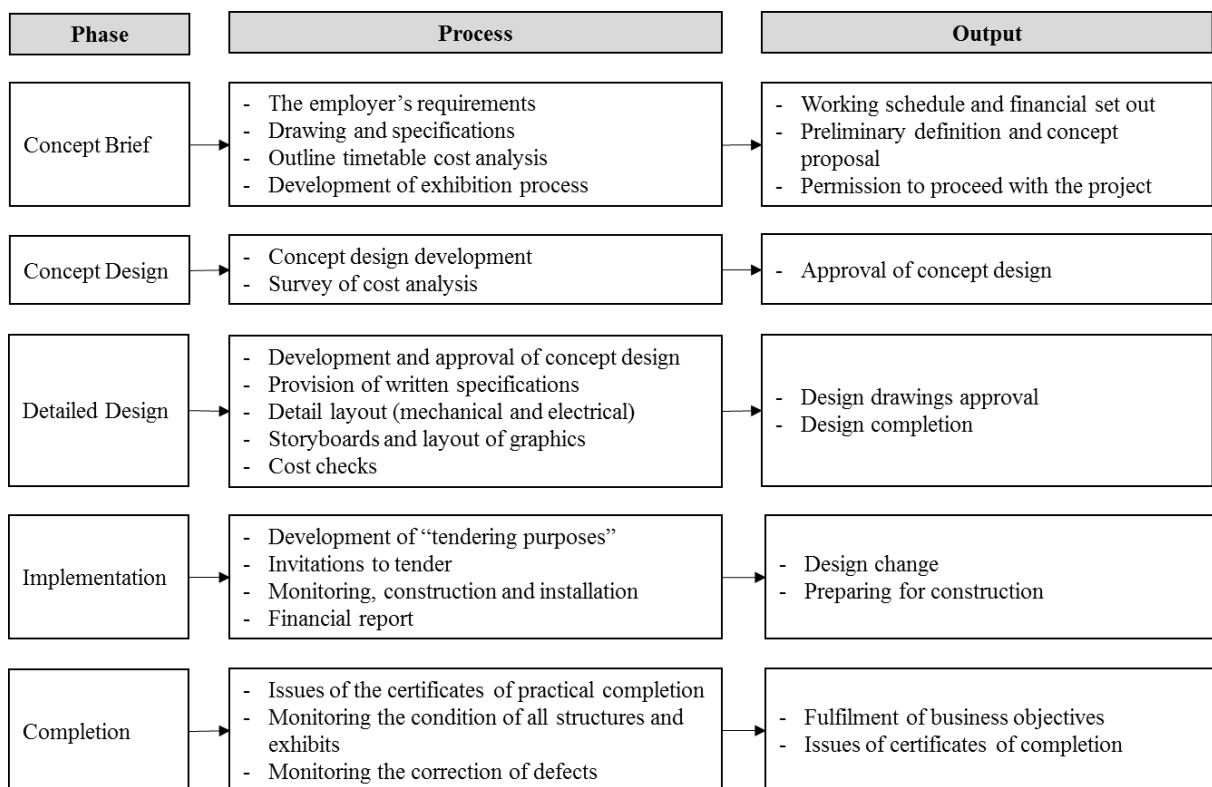


Figure 2-4: The Discovery Centre Work Stage

(Adapted from "Mapping the design criterion framework for museum exhibition design project" by Lin, C., 2009)



Nowadays, more and more fashion brands hold special events in exhibition format to promote the new collection and broaden the brand impacts. Therefore, the exhibition design process has been studied to help form the digital visual merchandising design process. The model can be applied to help improve exhibition planning and specify the design works. It is a project memorandum of good design practice and can be immediately aided for traditional methods of planning. It is also a tool to monitor an exhibition project throughout the design process and a functional specification of the designer's duties (Lin, 2009).

### **3) Visual Merchandising Design Factors**

The traditional visual merchandising design factors are divided into design elements and design principles. Based on the theory stated by Bell and Ternus (2017), the principal elements and the principles have been summarised and discussed as follows:

#### **Colour**

Colour is the first and most critical element in the design, which is also a kind of communication tool in visual merchandising. It is a powerful element, which can express a mood, emphasise features, and highlight product. Colour can quickly call up feelings and can be understood when people are sharing common experiences or a certain culture. In visual merchandising, colour is a common technique that can be applied to coordinate the merchandise. The process for colour coordination is called colour scheme. Each season, fashion brands develop different colour schemes based on the fashion design theme or the currently popular colours to promote new products by pleasing consumer eyes. In physical stores, the colour scheme should be applied and featured in highly visible areas to maximise

its effects, while for digital stores, it can be applied in the website homepage to transmit a profound first impression.

### **Layout**

Layout connects with several perspectives in visual merchandising design. It is about the ways to allocate merchandises and promotional materials, such as proportion, tension, displaying line and sequence. Proportion is related to an oversized prop used with normal-sized merchandise or it describes the scale contrast between large and small items in one display. In the visual presentation, the composition is the plan for the placement of elements within a work. It can be displayed aesthetically if the elements within it are balanced arranged. Direction leads the audience's eye from one place to another. Line guides the eye from a feature or linear element to set a mood. The technique of using a line can lead to a rhythmic feeling, which is an integral part of rhythm in the composition of visual presentation. Usually, there are four kinds of lines often used in the design that are vertical line, diagonal lines, horizontal lines and curve lines. For digital visual merchandising, the technique of using a line can be a cue to guide audiences viewing the merchandise (i.e., innovative textiles and fashion). The sequence in the physical store refers to the sequence of items in gradation from small to large, or large to small that aims to stress a particular item in a variety of sizes. In digital visual merchandising, it refers to the category of the item. The manner to sort the items should be displayed in an order.

The excellent visual merchandising layout should be well balanced. The merchandiser seeks a harmonious and eye-pleasing balance of elements in the merchandising design. The

techniques of formal balance and natural balance are the most used. Formal balance is also called symmetry, which occurs when two items of equal size or optical weight are equidistant from a centre point. Natural balance may be applied more, which occurs when objects are positioned in an asymmetrical arrangement where a single more massive object is counterbalanced by two or smaller objects on the other side at the centre point. The merchandiser can accomplish natural balance by grouping a variety of objects that have the same optical weight on two sides of a centreline.

### **Unity and Harmony**

In an artistic design, unity refers to an element trying to design balanced, harmonious. The consumers' eyes and brains are more than ready to see and enjoy the design if the merchandise is displayed in the principle of unity. It helps the audiences have a cohesive relationship with the merchandise. Harmony is an "artful" element, creating visible unity on many levels. It requires designers to keep the overall brand image and merchandising goals.

### **Repetition and Rhythm**

Repetition is a popular display technique in merchandising, which is to rank one identical element repeatedly. This principle can be applied in digital visual merchandising by recurring design elements like size, colour or shape in the presentation to create an impressive visual rhythm. Rhythm is another principle, which closely relates to repetition. Rhythm is achieved by the repetition of design elements to create a unique sense of visual cadence. When the eyes travel along the paths of repeated items and the merchandising message is reinforced.

### **Emphasis and Contrast**

Principles of emphasis and contrast decide which features of the merchandise will be highlighted. The highlighted or emphasised information is the information that retailer is attempting to deliver to the audiences. It may be popular colours, the new products and more. Emphasis can be achieved with dramatic effects through lighting, signing and graphics.

### **Surprise**

The design principle, surprise, is not generally associated with or used in conventional visual presentation. It is difficult to be effectively used. However, it can be an appropriate merchandising strategy because of the dynamic effect of “traffic-stopping”. The principle is also applicable for the digital visual merchandising to design with something unexpected, which may be easier to draw the audiences’ attention.

## **4) Visual Merchandising Design Forms**

### **Offline Forms**

Store or showroom display is belonging to the traditional visual merchandising displaying form, which the items are displaying in the physical environment so that audiences can interact with the merchandise directly. In this case, the merchandiser needs to create a “journey” to the audiences by maximising points of visual inspiration at every opportunity. Typically, there are three approaches that mainly used to display the merchandise, which are window display, mannequins or fixtures, and landscaping. The approaches used in traditional visual merchandising presentation in stores can be used as the approaches for offline digital visual merchandising.

The store window plays the role to enable customers to view the retailer's offers before entering (Bailey and Baker, 2014). Store windows can entertain, engage and inspire the consumers, helping them build an association with the brand. Visual merchandiser needs to consider how to deliver the message to the audiences and engage them in the store. The design of the window must be in accordance with the design theme in the store, which can help create and keep the visual cohesion and deliver a clear brand message. Two aspects should be considered to employ window display, a) where to access the window and tend to hide the access from the audiences' view; and b) the size of the window space like how ample the available space is, how the display will be viewed, how the facilities will be placed, how the window will be painted and how it will be maintained. For offline digital visual merchandising, these two aspects will transfer to a) how the digital visual merchandising will be viewed by the audiences, which angle will be the ideal perspective; and b) what is the proper size of the focal item displayed in the digital visual merchandising.

Displaying with mannequins is a crucial skill in fashion merchandising, especially in commercial environments. The selection of the mannequins should according to the brand values, promotional activities and seasonal trends, which may help present the characteristics of the merchandises. Mannequins' types can be classified by styles such as futuristic style, future fashion style, unrepresented style, abstract style, decorative style.

Landscaping is a technique traditionally used in theatre production for stage design. In visual merchandising, landscaping is used to create a space hierarchy within store space by creating the height order like viewing a natural landscape, which is graduating from the lowest to the

highest point. Usually, an audience's viewpoint leads from the display at the end of the threshold, which should be the lowest in height (ground or lakes), then built up to feature or capacity fixtures (plants or trees), which can lead the eyes to the back wall with large capacity merchandise (mountains) (Figure 2-5). This order can provide the best possible view of merchandise as the customer walks through the decompression zone (Bailey, 2014). This technique can encourage the audiences to shop from front to the back of the space so that the merchandise (i.e., textiles and fashion) can ideally be planned and displayed. This presentation approach may be proper for the digital visual merchandising in artistic style.

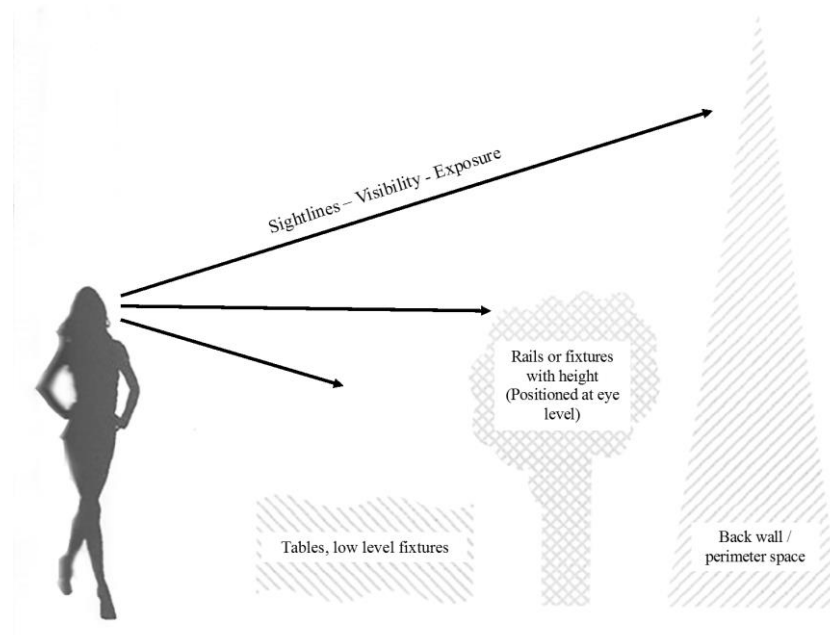


Figure 2-5: Landscaping Technique for Merchandise Displaying

(Adapted from Visual Merchandising for Fashion, by Bailey, S., and Baker, J., 2014,

AandC Black.)

Besides the presentation approaches studied from the traditional visual merchandising, new approach applicable for digital visual merchandising has been reviewed as well. The exhibition is an organised presentation and display of a selection of items. Exhibitions are the product of interdisciplinary teams, which bring a range of specialists together and each have distinct theoretical traditions and conventions of practice (Forrest, 2013). The exhibition usually occurs within a cultural or educational setting in many places such as a museum, art gallery, park, library, exhibition hall, or fair. There are many similarities between the store and museum. Stores and museums have both positioned themselves with the broader leisure sector, which is becoming audience-focused (Bonn, Joseph-Mathews, Dai, Hayes, and Cave, 2007; J. H. Falk and Sheppard, 2006; Pine, Pine, and Gilmore, 1999). Some audiences have likened the tactile experience of trying and handling merchandise to that of being in an interactive museum. Like a museum visit, when audiences visiting a store, it is an opportunity to enjoy the aesthetics of the environment, gain inspiration, and learn about new things (Gilboa and Vilnai - Yavetz, 2013). Fashion brands have paid attention to the fashion exhibition as their marketing strategy to attract new audiences. More importantly, fashion exhibition can investigate new audiences in terms of both age and socioeconomic background (Melchior, 2011).

Exhibition atmosphere has been regarded as a critical factor for exhibition design. The atmosphere is a term emerging awareness amongst marketers of the potential of applying principles of environmental psychology to marketing and retailing design (Turley and Milliman, 2000). The significance of atmosphere tends to be the most considerable in instances of pleasure-based (hedonic) consumption rather than purchases of necessity, and in-

market segments there is little to differentiate based on price or quality alone (Kotler, 1973). The techniques and strategies can be employed for designing fashion exhibition and fashion fair include object display, lighting the set, theatrical gauze, storyboarding, sound, video/film, interactive play, performance onsite and more (Hughes, 2010; Locker, 2011).

More empirical studies have been conducted through the document review to know about the presentation approaches of offline visual merchandising and the potential responses that audiences may react to the presentations. The results of the empirical study have been presented and coded in Table 2-3.

Table 2-3: Document Review on Offline Visual Merchandising and the Coding Results

Sources	Descriptions	Codes
Gilboa and Vilnai - Yavetz (2013)	<i>“People who were <u>impulse buying</u> were more influenced by <u>atmosphere</u> than those who were at the mall for utilitarian shopping.”</i>	Buying behaviour Atmosphere
Roppola (2013)	<i>“<u>Environments</u> can be considered as another form of interpretive media, which has many layers of <u>complexity</u> and <u>interactions</u> with other media, contents, and visitors.”</i>	Ambient environment Complexity Interactivity Design contents
Bofinger (2010)	<i>“There is an increasing emphasis on the creation of <u>environments</u> with <u>immersive, themed, and theatrical elements</u>.”</i>	Atmosphere creation Design elements
Kottasz (2006)	<i>“The museum <u>environment</u> was found to influence <u>visitor affect, overall visit satisfaction, and revisit intention</u>.”</i>	Ambient environment Psychological satisfaction



	<i>“<u>Atmospheric variables</u> had an impact on the affective state of visitors and self-reported behavioural intentions.”</i>	Behavioural response
Bonn et al. (2007)	<i>“<u>Cultural attractions, ambience factors</u> had marked impact on <u>visitor’s intention</u> to revisit and willingness to <u>recommend an attraction</u>. ”</i> <i>“Both <u>ambient aspects</u> and design correlated with <u>positive attitudes and intentions</u> to revisit and recommend the attraction.”</i> <i>“<u>Lighting</u> that is perceived to be ‘good’ is positively correlated with revisit intentions.”</i>	Design contents Cultural impacts Visiting behaviours  Ambient environment Colour scheme Lighting Graphic design
Kotler (1973)	<i>“Salient features of the <u>physical environment</u> inform the customer’s perceived environment, which in turn can influence <u>purchasing behaviour</u> through attention, message, and affect to subtly influence the design to purchase.”</i>	Ambient environment Behavioural response
Bitgood (2011)	<i>“<u>Design decisions</u> and the <u>location of choice</u></i>	Design contents
Klein (1993)	<i><u>points</u> have been shown to affect <u>visitor</u></i>	
Forrest (2013)	<i><u>orientation</u> and the <u>number of exhibits</u> that visitors will encounter and attend to.”</i>	Space layout Path flow Design contents
Pekarik and Schreiber (2012)	<i>“Visitors will be attracted to those <u>exhibits and environments</u> that offered to <u>fit with their need s and goals</u>. ”</i>	Ambient environment Design contents Needs of audience
J. Falk (2009)	<i>“<u>Atmospheric elements</u> will have a greater influence on ‘<u>people who following a general interest or curiosity</u>’ or ‘<u>people who are seeking a place of quiet respite</u>’ than ‘<u>professionals</u>’.”</i>	Atmosphere Audience segment

Andrews and Asia (1979) McManus (1996)	<i>“The <u>target audience</u> of the exhibition should be defined in terms of <u>unusual physical, perceptive or social traits</u> should be measured.”</i>	Target audience Visiting behaviours
Hooper-Greenhill (1999)	<i>“The <u>purposes of the exhibition visiting</u> should be measured, for entertainment purposes or leaning purposes.”</i>	Needs of audience
Leinhardt and Crowley (1998)	<i>“<u>Learners</u> will <u>spend relatively more time</u> with exhibit elements.”</i>	Needs of audience Visiting behaviours
Dexter and Lord (1999)	<i>“Visitors should be able to see the exhibition space so they can create a <u>visit plan</u>. Normally, visitors will need <u>clues</u> indicating the <u>exhibition’s continuity</u>.”</i>	Visiting behaviours Design contents
Rounds (2004)	<i>“Depending on the type of <u>exhibit element</u> and <u>visitor’s interest</u>, the <u>time spent</u> viewing an exhibit element may range between 10 seconds and 6 minutes.”</i>	Design contents Needs of audience Visiting behaviours
J. H. Falk, Koran Jr, Dierking, and Dreblow (1985)	<i>“<u>Visitor’s attention capacities</u> will largely diminish after 30-45 minutes due to museum fatigue and object satiation.”</i>	Visiting behaviours
Klein (1993)	<i>“Visitor will usually not <u>backtrack</u>, unless a <u>very interesting exhibit element</u> must be present.”</i>	Visiting behaviours Design contents Interestingness
Underhill (1999)	<i>“An aging population may have considerable implications for the way <u>exhibition spaces</u> are designed.”</i>	Space layout
Spencer (1999)	<i>“Special <u>exhibition space’s shape</u> might attract more attraction than others.”</i>	Space layout
Tröndle, Greenwood,	<i>“The <u>exhibition layout</u> design should be checked for any problematic areas.”</i>	Space layout

Bitterli, and van den Berg (2014)		
Bertron, Schwarz, and Frey (2006)	<i>“The <u>viewing distance</u> is directly proportional with the size of the exhibit.”</i>	Space layout
Bitgood (2002)	<i>“Every visitor will take up <u>space</u> during viewing. Viewers may cluster around exhibits elements and block other <u>visitor’s sight</u> and <u>circulation path</u>.”</i>	Space layout Visiting behaviours
Parsons and Loomis (1973)	<i>“Exhibit element <u>locations</u> should create a sense of <u>connectedness and continuity</u>.”</i>	Space layout Design contents
Bitgood (1992)	<i>“Visitors will usually <u>orient themselves towards</u></i>	Visiting behaviours
Bitgood (2010)	<i><u>the closet exhibit element</u> and follow the <u>path</u> that requires the least amount of effort.”</i>	Space layout

### **Online Forms**

The online visual merchandising is usually presented in the following three platforms website, mobile application and social media. Website is the most common way to reflect the physical stores in the digital world, which is with the functions of presenting information and product purchase. The mobile application is a kind of variation and supplementary to both website and offline store. With the mobile application, customers can enjoy the convenience to view and shop the product online. It can also be used to scan the tags to learn more about products in the store without having to take extra steps to research them online. With the penetration of social media, more and more social media like Instagram integrates the shopping function in the platform to make it easier to access the information about the promoting product and shop it directly. The subsequent texts are about the document review

on visual merchandising designs in the online form and how the online visual merchandising is being applied (Table 2-4).

Table 2-4: Document Review on Online Visual Merchandising and the Coding Results

Sources	Descriptions	Codes
Liang and Lai (2002)	<i>“Consumers are more likely to shop and return to <u>well-designed</u> web sites.”</i>	Design style
Szymanski and Hise (2000)	<i>“<u>Convenience</u>, <u>site design</u> and <u>financial security</u> are the dominant factors influence <u>e-satisfaction</u>.”</i>	Convenience Design performance Website security Psychological satisfaction
Ranganathan and Grandon (2002)	<i>“<u>Information content</u>, <u>design</u>, <u>security</u> and <u>privacy</u> are the four key dimensions that have an impact on online <u>purchase intention</u>.”</i>	Design contents Website security Behavioural response
Wu and Yuan (2003)	<i>“Graphic elements like the type of <u>tabular format</u>, the information <u>display positions</u>, <u>highlighting conditions</u>, the <u>luminance</u>, the <u>chroma</u> and the <u>hue combination</u> of the text foreground and background all affect reading performance.”</i>	Graphic layout  Colour combination
Vrechopoulos, O’keefe, Doukidis, and Siomkos (2004)	<i>“The <u>grid layout</u> is perceived as being more effective navigating a virtual store”</i>	Graphic layout
Griffith (2005)	<i>“The <u>tree structured</u> online store layout has a greater proportion of positive inferential thoughts, accurately recall a greater number of products and brand names, have a greater</i>	Graphic layout  Behavioural response

	<i><u>purchase intention</u>, a more positive <u>attitude</u> toward the retailer.”</i>	Brand attitude
Mummalaneni (2005)	<i>“The online <u>store ambience</u> has a positive effect on consumers’ <u>pleasure</u>, <u>arousal</u>, <u>satisfaction</u>, expressed <u>intention</u> of loyalty and number of items purchased.”</i>	Atmosphere Physiological response Behavioural response
De Wulf, Schillewaert, Muylle, and Rangarajan (2006)	<i>“Web <u>site organisation</u>, <u>content</u> and <u>technology</u> are all positively related to <u>pleasure</u> and <u>satisfaction</u>.”</i>	Design contents Technology employment Physiological response Psychological satisfaction
Clark et al. (2004)	<i>“A web site with <u>cool colours</u> will be perceived as more <u>pleasant</u>, more <u>enthusiastic</u>, more <u>solid</u> and more <u>sophisticated</u>.”</i>	Colour scheme Physiological response
Gorn, Chattopadhyay, Sengupta, and Tripathi (2004)	<i>“For each dimension of <u>colour</u> that induce more relaxed feeling states lead to greater perceived quickness. <u>Feelings of relaxation</u> have direct effects on site <u>attitudes</u>.”</i>	Colour combination Physiological response Brand attitude
Huang (2003)	<i>“Online <u>atmospheric</u> cues influence shoppers’ <u>pleasure</u>, which, in turn, influences <u>attitude</u>, then affects audience’s level of <u>satisfaction</u> and <u>approach/avoidance</u> behaviour.”</i>	Atmosphere Psychological satisfaction Behavioural response
McKinney (2004)	<i>“Some <u>atmospheric</u> variables contribute to <u>satisfaction</u> for all consumer segments, while other atmospheric variables influence <u>satisfaction</u> for specific shopping segments.”</i>	Atmosphere Graphic design Psychological satisfaction

Eroglu et al. (2001)	<i>“<u>Low task-relevant cues</u> are rated as being more helpful for respondents in high <u>atmospheric responsiveness</u>.”</i>	Customer participation Emotional response
Stevenson, Bruner, and Kumar (2000)	<i>“Simpler webpage <u>background</u> is more effective than more <u>complex</u> one.”</i>	Graphic design Design complexity
Bruner and Kumar (2000)	<i>“Increased webpage <u>complexity</u> leads to the pages being <u>perceived as more interesting</u>. <u>Interestingness</u> has a positive effect on consumer’s <u>attitudes</u> toward the webpage.”</i>	Design complexity Interestingness Brand attitude
Rosen and Purinton (2004)	<i>“Web sites scoring highly on <u>coherence</u>, <u>complexity</u> and <u>legibility</u> result in greater overall impression and probability of revisit.”</i>	Design contents Design complexity
Coyle and Thorson (2001)	<i>“Increase in <u>interactivity</u> and <u>vividness</u> is associated with increased <u>feelings of telepresence</u>. Increase in vividness is associated with more positive and more enduring <u>attitudes</u> towards the web site.”</i> <i>“The greater the enjoyment of the <u>interactive media</u>, the more positive the <u>attitude</u> toward the media.”</i>	Interactivity Vividness Brand attitude
Lee and Benbasat (2003)	<i>“<u>Fidelity</u> and <u>motion of images</u> in a web interface are instrumental in keeping customers for longer and may lead to an eventual <u>purchase</u>.”</i>	Technology employment Behavioural response
Richard (2005)	<i>“<u>Entertainment</u> is positively related to site <u>attitudes</u>, site involvement, exploratory <u>behaviour</u> and <u>purchase intentions</u>.”</i>	Interestingness Brand attitude Behaviour response
Martin, Sherrard, and Wentzel (2005)	<i>“More favourable <u>brand attitudes</u>, <u>web site attitudes</u> and <u>purchase intentions</u> emerge under medium web site <u>complexity</u>.”</i>	Brand attitude Behaviour response Design complexity

Fiore, Jin, and Kim (2005)	<i>“Image <u>interactivity</u> predicts <u>emotional arousal and pleasure</u>, <u>attitude</u> towards the online store and <u>willingness</u> to purchase from the online store.”</i>	Interactivity Emotional response Brand attitude
Fortin and Dholakia (2005)	<i>“<u>Interactivity and vividness</u> directly affect <u>social presence</u> and indirectly involvement.”</i>	Interactivity Vividness Social presence
Burke (2002)	<i>“<u>New technologies</u> can enhance the <u>shopping experience</u>, but applications must meet the requirements of <u>consumer segments</u> and <u>product categories</u>.”</i>	Technology employment Brand experience Customer segments Product complexity

## 5) Technologies for Visual Merchandising

Technologies for improving shopping experiences emerge in endless stream. The shopping is getting more informative, smarter, more interactive, and more engaging. The technologies not only lead the consumer to a virtual world but also enhance the shopping experiences in both offline and online scenarios. The research results from Bailey and Baker (2014) suggested that some leading technologies are facilitating and can be employed in the digital visual merchandising.

### **Simulated Virtual Reality**

Virtual reality is a digital mean of simulating a physical presence blurring the boundaries between the real world and the virtual world, which can be created by electronic devices. This technology is mainly used in visual merchandising to illustrate digital walks through a simulated computer-generated three-dimensional space.

### **Augmented Technology**

In the fashion industry, augmented technology is employed in augmented reality, which is used as an interactive tool that enables consumers to “fit” the clothes without actually going to the fitting room. It provides brands with opportunities to have virtual stores without placing real products. This method has not been widely used yet. The virtual mirror is an example of applying augmented technology, which contains a digital screen to enable the consumer to search the fashion items by hand gestures and virtually demonstrate the trying on effects.

### **Mediated Reality**

Mediated reality supports the smart-phone application to connect with the audiences. More and more fashion brands are employing this technology now. Consumers can use the application to navigate and recommend merchandise. More functions have been developed in the application that can quickly scan the product with bar-code and locate it in the store. More product information may be acquired via the application, even completing a purchase.

### **Interactive Activities through Kinetic Technology**

The key to the Kinetic technology contains a sensitive bar, which can respond to the users' actions. It is always used in the digital windows or combined with a screen to present digital content such as photographs, videos, product details interactively. The camera can track users' movements. The linked a computer may respond to the gesture, then reflect corresponding images.



### **Immersive Technology**

Immersive technology is always used to project images in cultural and performing occasions. The technology has been used for special events, military applications, festivals ceremony and emergency services. For fashion, this technology has been used to transport audiences to an imaginary destination or virtual environment.

### **Digital Mannequins**

Digital mannequin is a kind of technology that involves the projection of images, with regular garment changes to show different available garment combinations. A camera with analytical software is installed in the head of the mannequin to track consumer behaviours and provides data such as the number of people passing during a specific period. It helps sell a product without taking up valuable selling space.

#### **2.2.1.3 Factors Affecting Visual Merchandising Performance**

Besides the factors related to design perspective, some factors may affect the digital visual merchandising performance are also taken into consideration. No matter the traditional visual merchandising or the digital visual merchandising, it will not be a practical design if only using surprising things to draw attention but neglecting the efficiency in information delivery and the audiences' demand. In this section, some theories were studied to figure out how information management and psychological effects affecting the performance of digital visual merchandising.

## **1) Information Management**

Foulger's ecological model has been studied to know the mechanism of how the message is transmitted to the audience effectively. Foulger's ecological model was developed from Shannon and Weaver's model and made a more detailed elaboration of Lasswell's model. The relationship establishes among a series of general relationships between people, messages, language, media and the communication they enable (Foulger, 2004a). In Figure 2-6, communication occurs in the intersection of fundamental constructs: communication between people (creators and consumers) is mediated by messages using languages within media (encoding process); consumed from media and interpreted using languages (decoding process) (Foulger, 2004b).

In this model, the roles of consumers and creators are reflexive. People become creators when they reply or supply feedback to other people. Creators become consumers when they make use of feedback to adapt their messages to message consumers. People may learn how to create messages effectively through the act of consuming other people messages. In digital visual merchandising, the creator will be the designer of the merchandising, and the consumers will be the target audiences. The roles of the consumer and creator are introspective. Creators of messages create messages, and consumers of messages interpret those messages within the context of their perspectives and relationships. Creators optimise their messages to their target audiences. Consumers make attributions of meaning based on their opinions of the message creator. The whole process forms the function of communication.

Messages are created and consumed using language. Language occurs within the context of media. In digital visual merchandising design, this language can be the message delivered by different digital tools. The created messages may be limited within the selected media and the meaning representation space provided by the language used. Consumers interpret messages within the limits of the languages used. The creator should use the language that consumers who already know to avoid the situation that the message interpreted by the consumer is very different from the meaning the creator would like to express.

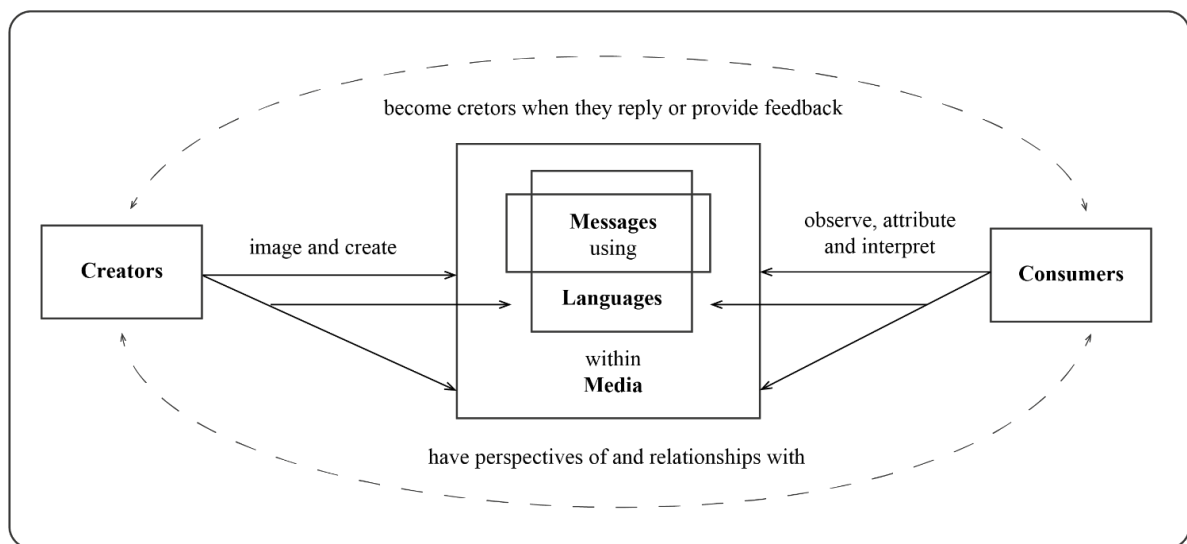


Figure 2-6: An Ecological Model of the Communication Process

(Adapted from “An ecological model of the communication process” by Foulger, D., 2004)

## 2) Psychological Effects

### **S-O-R model**

Based on the Foulger’s ecological model, it has been found that the audiences may interpret the message based on their own opinions. Digital visual merchandising can be a group of

messages that set with environmental stimuli. Therefore, the perception of digital visual merchandising might be affected by the psychological factor. In this context, the S-O-R model based on psychology helps explain the effect of the environment on human behaviours was studied (Figure 2-7). S-O-R model, the alphabet represents for stimulus (S), organism (O), and response (O) respectively. S-O-R suggests when a person is exposed to external stimuli, “inner organism changes” precede behavioural responses (Kawaf, 2012). Now, the S-O-R model has dominated consumer behaviour literature and has been widely employed in marketing studies (Arora, 1982; Buckley, 1991; Kawaf, 2012; Robert J, John R, Gilian, and Andrew, 1994; Wakefield and Blodgett, 1996).

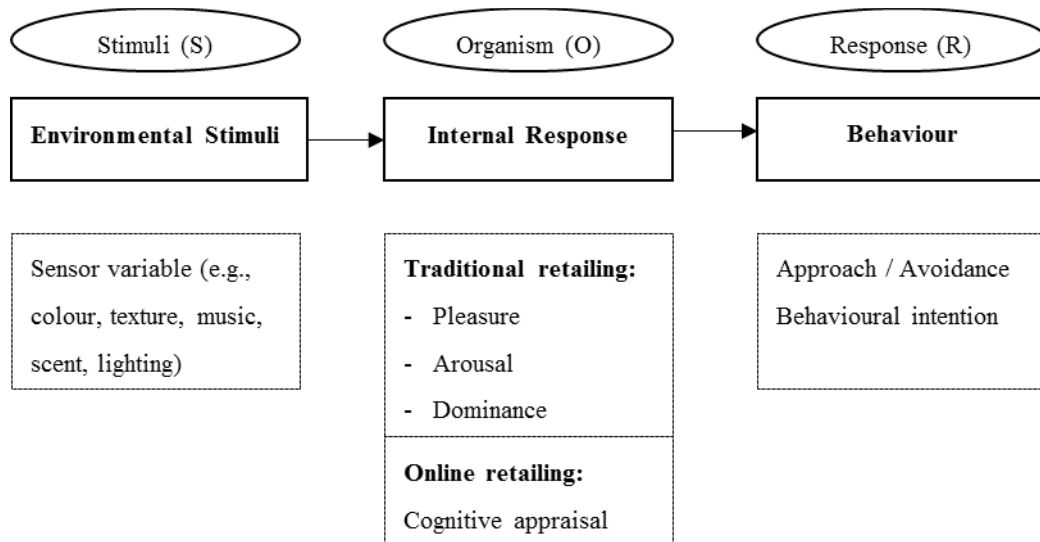


Figure 2-7: Stimuli-Organism-Response Theory Model

(Adapted from “Online shopping environments in fashion shopping: An S-O-R based review” by Kawaf, F., 2012)

Much research has proved that the influences of the buying environment or the service space impact customers' expectations, cognition and emotion in a traditional store environment (Aubert - Gamet, 1997; Bitner, 1990; Booms and Bitner, 1982; Reimer and Kuehn, 2005; Wakefield and Blodgett, 1996). A comprehensive taxonomy of online atmospheric cues has been systematically developed and identified that the major factors affecting carry out S-O-R model in the online environment are similar to the traditional retail store environment (Eroglu et al., 2001). The contents of each component of the S-O-R model in an online environment can be understood based on the theoretical structure established in the traditional retailing environment.

The component of stimuli may comprise by ambient factors (Mummalaeni, 2005), design factors (Éthier, Hadaya, Talbot, and Cadieux, 2006; M. Kim, Kim, and Lennon, 2006; Koo and Ju, 2010) and social factors (Flavián and Guinalfú, 2005; Ku, 2011). In the online environment, the stimuli mainly include product presentation (visual and verbal) factors (M. Kim and Lennon, 2008), layout and functionality (Goode and Harris, 2007), and links and menus on the website (Koo and Ju, 2010). Most techniques used in offline stores can also be implemented in online fashion websites. The stimuli for online store design classified by Ha, Kwon, and Lennon (2007) can be employed as the techniques for stimuli setting in online digital visual merchandising design, which include a) online pathfinding assistance (search engine, site map, and categorisation); b) environmental atmosphere (music, video, display, background colour, colour surrounding products; and c) manners of products presentation (display method, product colour, product view, detailed view, swatch and mix-match).

The component of the organism is reflected by emotion and cognition, which represented by cognitive and affective intermediary states that mediate the relationships between the stimulus and the person's responses (Chang and Chen, 2008). The measurement results of the organism may help examine and improve the performance of the digital visual merchandising design. The internal responses like emotion and affection may arise from evaluating someone or something based on cognitive appraisal theories of emotions. S-O-R paradigm suggests that feelings or emotions are the natural results of exposure to environmental stimuli (Kawaf, 2012). Russell and Mehrabian (1977) introduced the PAD model to measure the emotion, which comprises with pleasure, arousal and dominance. According to the PAD model, emotions can be measured dimensionally based on either positive or negative emotions, such as pleasure/displeasure, arousal/non-arousal, dominance/submissiveness (Kawaf, 2012).

Another method is called "Cognitive appraisal approach" has been widely applied in the online environment, which offers a more in-depth way to explain the subtle nuances of emotion (Éthier et al., 2006; M. Y. Jones, Spence, and Vallaster, 2008; Watson and Spence, 2007). When a person exposed to stimuli, he/she first evaluates the situation; hence, a cognitive appraisal is made (either consciously or subconsciously). Based on the appraisal results, an emotion emerges, and a response follows (Kawaf, 2012). Emotions are associated with a person's goals and motivations and are essential in understanding coping strategies (Lazarus, 1993; Lazarus and Launier, 1978). Watson and Spence (2007) advocated that emotion is predictable, which should be elicited in a particular interaction.

Following the exposure to stimuli and the development of inner consumer organism, a responsive behaviour emerges (Kawaf, 2012). Two behavioural responses may occur, which are the approach-avoidance theory and behavioural intention. In approach-avoidance theory, customers may react to the displays in service space in two opposed behaviours – approach and avoidance (Aubert - Gamet, 1997; Eroglu et al., 2001; Ezech and Harris, 2007). The approach is the positive behavioural response that customers may be willing to stay, explore and purchase, while avoidance is the opposite. Behavioural intention comprises the intent to purchase (Ballantine and Fortin, 2009; H. Kim and Lennon, 2010; Koo and Ju, 2010), repurchase, spread positive word of mouth (WOM) and become loyal to the retailer (Dennis, Merrilees, Jayawardhena, and Wright, 2009), in addition to switching and complaining behaviour (Kawaf, 2012). The approaching behaviours may approve the effectiveness of the digital visual merchandising design.

### **Reversal Theory**

Reversal theory was proposed by Apter, which can be used to induce changes (reversal) in motivational states and emotional arousal, to guide the audiences in the desired experience. Reversal theory has been applied to investigate the psychological impacts that motivation design may influence on people (Apter, 2015). The theory can be applied to control the stimuli setting and adjust the design factors in digital visual merchandising design. According to the reversal theory, four different patterns of motivational and emotional impact were proposed (Table 2-5).

With the different motivational dimensions and their possible effect on activity, Apter expanded the idea of telic v/s para-telic states, by relating it to the level of arousal in an activity. A high arousal situation will lead to anxiety in telic mode, but high arousal will be perceived as exciting in the para-telic mode. Similarly, low arousal situation in para-telic mode is boring, but it may be preferred in telic mode leading to relaxation. The designer can explore two kinds of possibilities while designing, a) reversing a telic activity into para-telic activity; and b) increasing/decreasing arousal levels within the para-telic state to create pleasant experiences. The effect presents a “butterfly curves” (Figure 2-8) for the somatic states and the transactional states. Somatic states are related to feel arousal, while the transactional states are related to feel transactional outcome from losing to gaining.

One basic idea of reversal theory is to make external objects and events (both human and inanimate) as agents to create reversal. In digital visual merchandising, the reversals may be caused by environmental events or situations. The event or situation will consist of the actions or words or expressions of other people (Apter, 2015). There also many cues may prompt reversal, such as smell, temperature, size (Augustin, Frankel, and Coleman, 2009). Two cues, colour and shape, are particularly apparent to create reversal power. It has been found that people rated hot colours like red as arousing and cool colours like blue as de-arousing. The state measure indicates that people are indeed in the telic state when they chose cool colours and in the paratelic state when they chose hot colours. Both the colours are presumably chosen to change the pleasantness of the emotion within a continuing state (Apter, 2015).



When people recognise an object/thing, they do so mainly through the shape of the item (Koffka, 2013). Govinda (1977) labelled some essential form, which are cube, cylinder and sphere. Fontana (1991) believed that these are some basic shapes that helped people observe the items. Cube as the most immovable can represent fixity of purpose, while the sphere as the most moveable represents flexibility. In contrast, the square represents the telic and the sphere in the paratelic (Fontana, 1991). More research can be conducted from the perspectives such as if the shapes are linked with symbols in the telic and pare-telic states or have the power to induce them (Apter, 2015).

Table 2-5: Motivational and Emotional Impact Types

(Adapted from “Towards a theory of things: reversal theory and design” by Apter, 2014)

<b>Impact Types</b>	
1	The emotional change caused by design but without a reversal occurring (i.e., it changes the only level of felt arousal or felt transactional outcome).
2	The emotional change caused by design in which of the motivational states among the ongoing active states, but without a reversal occurring.
3	Exposure to the design does bring about reversal but does not change the arousal level.
4	The design brings about a reversal and changes to the arousal level.

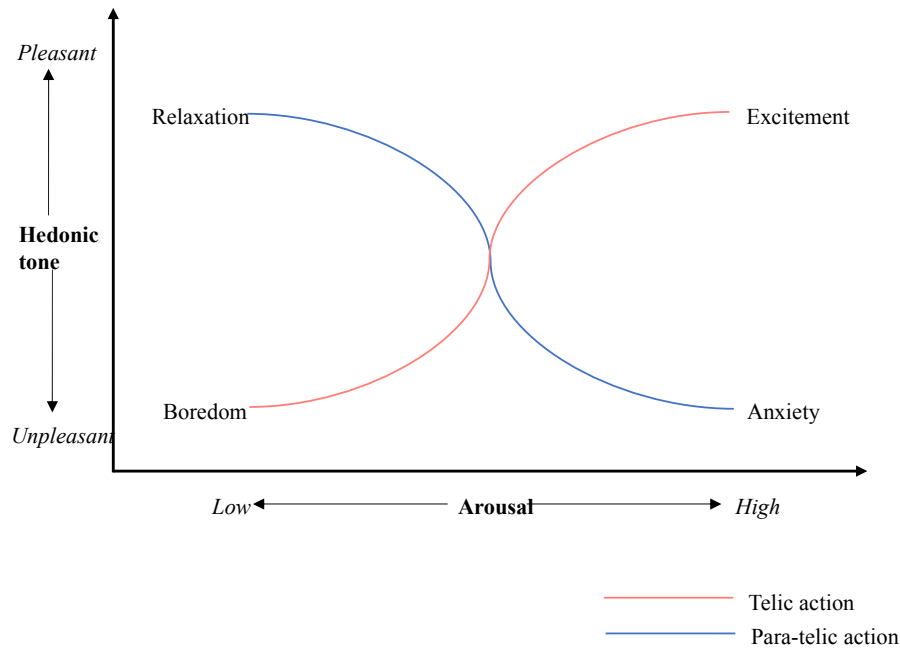


Figure 2-8: The Effect of Arousal and Hedonic Tone in Telic and Para-telic Actions

(Adapted from “Reversal theory and the structure of emotional experience” by Apter, 2015)

### **Berlyne’s Collective Properties Theory**

The perception of digital visual merchandising may affect by subjective factor such as personal aesthetics. A model of aesthetics called Berlyne’s Collective Properties Theory developed by Daniel Berlyne was studied to figure out the impacts on digital visual merchandising caused by aesthetics. As shown in Table 2-6, people respond to aesthetics based on a systematic comparison of properties, such as novelty, complexity, incongruity, and surprise (D. Berlyne, 1971; D. E. Berlyne, 1974). Creative practitioners may create perceptual conflict. This theory provides a framework for designers to resolve the conflict that results in aesthetic evaluation.

Berlyne proposed that the mentioned properties would influence the perceiver's aesthetic judgement from two psychological dimensions, hedonic tone and uncertainty-arousal.

Hedonic tone refers to the design elements that serve no purpose other than to provide beauty and artistic pleasure. Uncertainty-arousal is related to subjective uncertainty, such as the simultaneous feelings of excitement and discomfort evoked by environments that both complex and simple or ordered and chaotic. Berlyne also examined the distinction between diverse and specific exploration (Kopec, 2018), which were the responses to the surrounding environments. Diverse exploration occurs when a person is under-stimulated and seeks arousing stimuli (e.g., people may turn up the stereo if they felt they were in a too quiet environment). Specific exploration happens when a person is aroused by a particular stimulus and investigates it to reduce the uncertainty or to satisfy the curiosity of arousal (e.g., when a person hears water sound then explores the environment to find out the sound source).

Table 2-6: Properties and Contents of Berlyne's Aesthetical Evaluation

<b>Properties</b>	<b>Contents</b>
Novelty	Anything new, such as innovative ideas, or materials used in different ways
Incongruity	Design features that seem out of place or context
Complexity	The variety of items in an environment
Surprise	The unexpected thing

Berlyne's theory helps design the environmental stimuli in digital visual merchandising from an aesthetical perspective. However, it cannot be applied without the considerations of one's personal attitude or predisposition, toward what is being perceived. The attitudes are often rooted in one's worldview, which is a set of core values that originate with familial and

cultural experiences. These values combine into a fundamental belief about the nature of things. People hold the same worldview may have a similar attitude to the happenings. The opinion to one thing is just how that person looks from the current position, which may change with new information and probably be subjective.

## **2.2.2 Innovative Textiles and Fashion**

### **2.2.2.1 Characteristics of Innovative Textiles and Fashion**

Referring to the theory developed by Joseph Schumpeter (1991), the innovation was defined and measured from six perspectives, including a) the introduction of a new product or a qualitative change in an existing product; b) the introduction of a new products or a qualitative change in an existing product; c) the process innovation new to an industry; d) the opening of a new market; e) the development of new sources of supply for raw materials or other inputs; and f) the change in industrial organisation.

Innovation is a concept to describe those new invented or developed textiles, or fashion items designed with newly developed textiles. It can be a kind of textiles made by newly invented technology, produced with a more sustainable process, or developed into fashion with creative thinking. These innovations can both benefit the aesthetics of textiles or fashions' outlook and facility the functions for using.

The innovation level should be measured when forming the digital visual merchandising concept. The investigation of the innovative textiles and fashion can be conducted from three aspects by measuring the innovation level of the innovative textiles and fashion, the features

of the textiles and fashion, and the narrative formulated to the digital visual merchandising. The innovation level of the textiles and fashion can be examined through the level of the product's innovation. According to the methods developed by Rogers (1998), the innovation level of the textiles and fashion can be assessed from the outputs measures of innovation (Table 2-7).

Table 2-7: Measurements of Textile and Fashion Innovation

Measure points	Descriptions
Introduction of the new or improved product(s) or process(es)	The new feature/property of the new/improved textiles and fashion
Opening a new market and have sales from new/improved product(s) or process(es)	If the textile and fashion opened a new market and have sale percentage of the new/improved textiles and fashion and their accounts for by a) new textiles or fashion; b) improved textiles and fashion; and c) traditional textiles and fashion
Intellectual property statistics	If the technology employed for textile and fashion production has achieved or is applying for a patent, trademarks and more
Firm performance	The profits, revenue growth, share performance, market capitalisation or productivity of the textiles and fashion (if the products have been launched in the market)

In most cases, innovative textiles and fashion are in the trial stage that are preparing to be introduced into the market. People still do not familiar with or even do not know about the innovative textiles and fashion due to the limited knowledge of the relevant technology or

designs. Sometimes, audiences may be interested in a new product, but they may not buy it because they do not realise the values of that product. Therefore, the employment of digital visual merchandising can help them fully understand the textiles and fashion.

#### **2.2.2.2 Representative Innovative Textiles and Fashion**

For the textiles made by newly developed technologies, some representative innovative textiles and fashion have been presented in this section. The first one is the textiles/fashion using newly developed materials. The second one is the improvement in production technologies. The third one is about the potential application areas of the innovative textiles or fashion. When preparing the digital visual merchandising, it may need to recognise the key features of the textiles and fashions. Some examples have been presented to give an outline on innovative textiles and fashion.

##### **1) Smart Textiles**

Smart textiles can be called intelligence textiles. When applying the clothes, it will obtain the function of “reading” the body and react. The functions of the clothes will change according to the human body and the surrounding environment. According to the report introduced by the University of Boras, primarily, smart textiles work for the areas of health and medicine, including sports and personal protective equipment, sustainable textiles, architecture materials and interiors decorations.

## **2) Colour-changing Textiles**

Each season, some trendy colours will be introduced for fashion design. Modern advances in photo-chromatic technology are throwing up some more possibilities that let the clothes react to the environment. Colour-changing fabric is a kind of textile composed of a primary woven material that integrated fibres can emit light or process light so that the colour of textiles will change. The electrically conductive fibres have been adopted to expand the application areas. Colour-changing textiles make garments more multi-functional and cut down the wardrobe extensive and increase the life of a garment (King, 2017).

## **3) Functional Textiles**

Functional fabrics are those textiles have some high-performance properties. The advanced dyeing and coating technologies may help achieve the multi-functions. Nano-fabric is a kind of representative textile in this area. Through the new technologies, the textiles will have functions such as water repellence, self-cleaning, anti-bacteria, self-healing. The clothes combining with functional fabrics have advantages in performance, and consumers may enjoy the convenience such as easy to wash.

## **4) 3D-printed Textiles**

3D textiles are produced by 3D printing technology that employs a specific printer. The paired software for the printer will process a model of the simulated textile shape. Some emerging fashions designers have tried to use this technology for fashion item creations. With the technology improvements in 3D printers, the smaller 3D printing device can be

obtained in the market now, and more people are getting familiar with this technology than before.

### **2.3 Digital Visual Merchandising Case Studies**

Offline and online cases were selected to conduct case studies aimed to explore the techniques, presentation approaches and digital tools that fashion and textile brands used in their promotional events and websites. The cases were selected based on the criteria of the differences in a) promotional objectives; b) brand styles; c) product complexity; d) visual presentations; and e) digital tool employments. The methods of on-site observation and document review were applied to conduct the case studies and collect raw data. With the collected data, open coding was processed to identify the potential design factors lying in the existing visual merchandising designs.

#### **2.3.1 Offline Cases**

##### **2.3.1.1 Offline Promotional Event by Burberry**

Burberry is a British luxury fashion brand with a focus on craftsmanship and innovation. The brand sticks by its British identity, promising the customers the true English style, through clean, smart and timeless style designs. The craftsmanship is contrasted with form and function, which exudes sophistication and elegance, and at the same time, maintains modern edginess and British sensibility. The brand strives to rework to find a balance between classic and fashion-forward aesthetics by upgrading the recognisable brand icons, including vintage



checks and logos (Burberry, 2020). The analysis of the brand background has been presented in Table 2-8.

Table 2-8: Background Analysis of Burberry


Items	Descriptions
Key colours	
Product mapping	Products include womenswear, menswear and children's wear, featuring in trench coat and scarves. The product categories can be classified into clothing, bags, accessories, shoes and beauty.

Table 2-9: Information about Burberry's Event and Audiences Analysis

Items	Descriptions
Title	He We Are - Burberry photography exhibition
Period	11 to 19 November 2017
Venue	Joyce, 20 Queen's Road Central, Hong Kong
Purpose/Story	The exhibition explored British heritage and the exhibited works featured over 100 British social portraits and documentary photographs by more than 30 of today's most well-known social and documentary photographers.
Scale	Small
Audiences' analysis	The exhibition faced to all public for free, main target audiences were celebrities, fashionista, people have interest in British heritage and lifestyle and people has interest in photography.

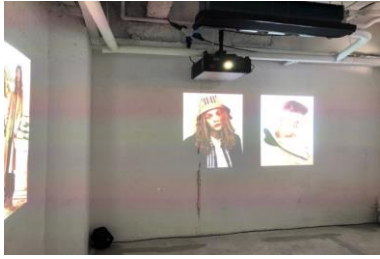
The brand held a series of promotional events in exhibition format to promote its new collection. The event was first presented at Old Sessions House in London in September 2017 and went alongside the runway show. Then, the brand moved the exhibition to Hong Kong and developed to an exhibition tour that followed by exhibiting in Paris. The exhibition faced to the public for free and organised with private tours to explain the displaying photographs and fashion works in detail. The exhibition attracted celebrities and fashionista for a view and also appealed to people who had an interest in British heritage culture, lifestyle and photography (Table 2-9).

The exhibition explored British heritage and the exhibited works featured over 100 British social portraits and documentary photographs by more than 30 of today's most well-known social and documentary photographers. It consisted of 11 thematic sections in the two-storey space and tried to reveal the British way of life, traditions as well as a fashion style. The fashion items of September 2017 womenswear and menswear collections were juxtaposed with photographic works. Some photos were the inspirations for the collection, which displayed the designer's thought process behind designing the outfits.

The presentation techniques used in the event have been discussed and analysed in Table 2-10. The on-site observation was conducted from the perspectives of a) colour scheme applied in the event; b) presentation approaches to create atmosphere; c) employment of digital tools; and d) interactivity with the audiences. The coding results of the design factors have been presented in the table as well.

Table 2-10: Offline Observation of Burberry's Event and Coding Results

Images and descriptions	Codes
<div data-bbox="293 342 672 590"></div> <div data-bbox="685 342 1063 590"></div> <p data-bbox="250 611 451 642">Colour scheme:</p> <div data-bbox="323 657 1031 737"> </div> <ul data-bbox="250 758 1096 905" style="list-style-type: none"> <li>- All photos on site were <u>black and white tone</u>.</li> <li>- The exhibition was <u>divided based on themes</u> and distinguished by the different <u>colour walls</u>.</li> </ul>	<p data-bbox="1133 758 1328 789">Colour scheme</p> <p data-bbox="1133 814 1300 846">Space layout</p>
<div data-bbox="293 936 672 1184"></div> <div data-bbox="685 936 1063 1184"></div> <div data-bbox="293 1201 672 1449"></div> <div data-bbox="685 1201 1063 1449"></div> <ul data-bbox="250 1470 1096 1780" style="list-style-type: none"> <li>- <u>Colourful lighting</u> was employed to attract the attention from outside and <u>highlighted the exhibition title</u>.</li> <li>- <u>New season's collection</u> was placed at the centre of the exhibition site.</li> <li>- <u>Vintage furniture</u> and <u>flowers</u> were scattered on-site to help create a cosy atmosphere.</li> </ul>	<p data-bbox="1133 1470 1247 1501">Lighting</p> <p data-bbox="1133 1581 1341 1612">Design contents</p> <p data-bbox="1133 1692 1417 1724">Ambient environment</p>



- Projector and HD screen were used to play the fashion collection photos and runway videos. Digital tool employment
  - Furniture like the sofa was placed around to let the audiences watch the video in a more comfortable environment. Ambient environment
- 



- Exhibition posters were distributed to the audiences for free. Interactivity with audiences
- 


Through the observation and discussion of the event held by Burberry, it found that the renovation of the displaying site such as painted the walls in colour helped create the atmosphere. The furniture displayed at the site were localised, which distinguished with the series held in other countries. However, there were some issues might be improved for a better display. First, it was supposed that the event was aiming to promote the new collection through the photography theme. But the explanation of the exhibited photos was delivered by the guides at the site. There was no captions or materials introduced the photos so that the audiences might not understand the implications underlying the photos if they did not know about the British culture. Secondly, the relationship between the displayed new garment

collection and the photography did not well narrated. The garments and photography seemed like two separate parts. There was no explanation about the new collection neither. Thirdly, it was recognised that the visiting path flow at the site was not clear. The audiences could not detect the path flow quickly if there was no staff guiding at the site.

### 2.3.1.2 Offline Promotional Event by Chanel

Chanel is a French high-fashion brand that focuses on haute couture, ready-made clothes, luxury goods and accessories (Chanel, 2020) (Table 2-11). The brand is well known for its Chanel suit and perfume CHANEL N°5. According to the brand history, Chanel revolutionised the fashion of haute couture and pret-a-porter by replacing structure-silhouettes based upon the corset and the bodice with garments that were functional and flattering to the woman's figure. The clothes featured quilted fabric and leather trimmings and the quilted construction producing a garment that maintains its form and function while being worn.

Table 2-11: Background Analysis of Chanel

Items	Descriptions
Key colours	
Product mapping	The products categories include haute couture, fashion (i.e., ready-to-wear, bags, accessories, and eyewear), watches, fine jewellery, fragrance and beauty.

The event “Mademoiselle Prive” was held in an exhibition format that specially designed to take audiences on a seamless and immersive brand journey (Chan, 2018). The exhibition



illuminated the innovative vision and creative momentum of founder Gabrielle Chanel, now championed by the House's Artistic Director Karl Lagerfeld. The brand would like to expand its globalisation through the event. The exhibition was first presented in London in October 2015 and held in Seoul in June 2017, then moved to Hong Kong in 2018. The exhibition in Hong Kong occupied two floors and contained seven sections, with a total of 17 exhibits (Chan, 2018). The exhibition invited audiences to immerse themselves in the dazzling history of the House through an exploration of the three pillars by Coco Chanel: haute couture, perfume CHANEL N°5 and high jewellery (PMQ, 2018). The exhibition faced to all public and appealed to the people who were curious about the brand culture, had an interest in fashion (Table 2-12).

Table 2-12: Information about Chanel's Event and Audiences Analysis

<b>Items</b>	<b>Descriptions</b>
Title	Mademoiselle Prive Hong Kong
Period	13 January – 10 February 2018
Venue	Courtyard and Marketplace, Qube, PMQ, Hong Kong
Purpose/Story	The exhibition captured the charismatic personality and irreverent spirit of founder Coco Chanel and Karl Lagerfeld, the fashion house's head creative director. It highlighted the modernity of Coco Chanel's emblematic creations; how haute couture has been reinvented by Lagerfeld.
Scale	Middle – large scale
Audiences' analysis	The exhibition faced to all public for free, main target audiences were celebrities, fashionista, people who has interest in fashion and people who is curious about Chanel.

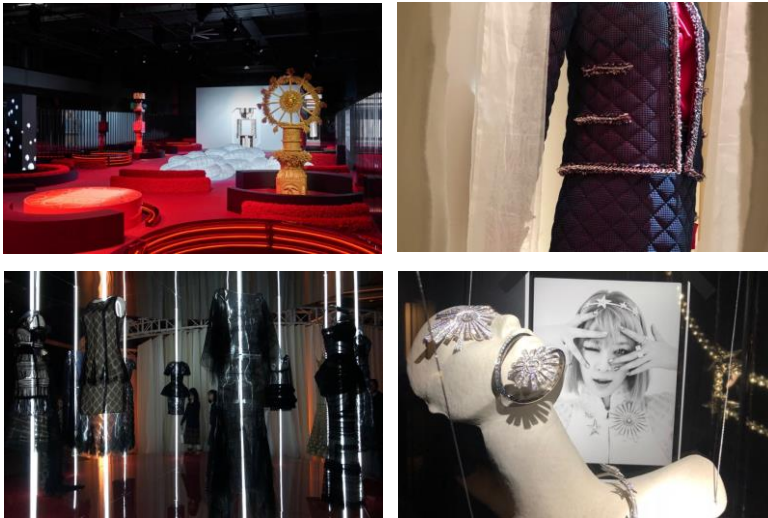
The discussion of the presentation techniques used in the event have been described and analysed in Table 2-13. The on-site observation was conducted from the perspectives of a) colour scheme applied in the event; b) layout plan of the event; c) presentation approaches; d) employment of digital tools; and f) interactivity with the audiences. The coding results of the design factors have been presented in the table as well.

Table 2-13: Offline Observation of Chanel's Event and Coding Results

Images and descriptions		Codes
		
<p>Colour scheme:</p> 		
<ul style="list-style-type: none"> <li>- The exhibition was displayed in an immersive environment of <u>red colour</u> at the entrance area.</li> </ul>		Colour scheme
<ul style="list-style-type: none"> <li>- The immersive environment was also created by redesigning and restoring the exhibition venue with wallpaper, carpet and material pasted on window in <u>brand colours</u>.</li> </ul>		Atmosphere



- Exhibition map was provided through a special designed mobile application to guide the exhibition viewing and let the audiences has a clear perception of the exhibit's allocation. Space layout



Red lighting was used at the entrance area where the to let the audiences immersed in the exhibition quickly. The entrance shape was like the historic building at 31 rue Cambon, Paris, where Coco Chanel set up for her boutique precisely a hundred years ago.

Lighting

- Installation collection that collaborated designed with artists were also displayed in the entrance area. This area was named as



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“Red Garden”. The artists designed the installations with representative Coco Chanel’s favourite elements like camellia, pearls, lucky numbers, which all symbolised a different milestone in the legacy of Chanel.

Presentation  
approach

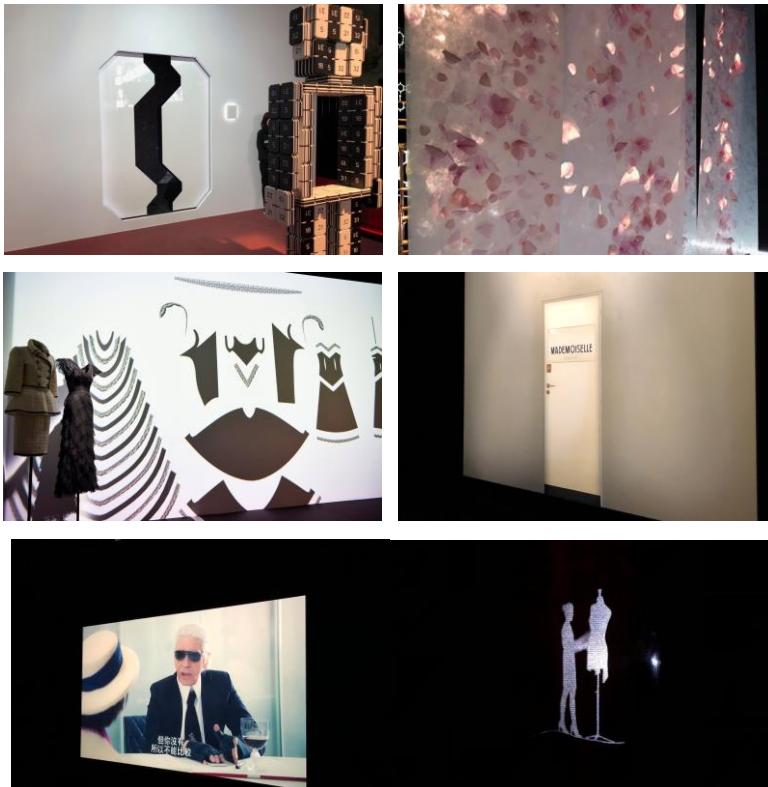
- Brand icons like camellia, N°5, and woollen cloth were repeated in the exhibition.
- Representative fashion items like Chanel suits, jewellery, and perfume were also displayed in the exhibition by various display tools.
- Greige cloth was used to be like curtains around the suits in order to emphasis the details, mannequins with lighting were used to show the black suits in the dark environment, and jewellery was displayed in the showcases.

Design contents

Presentation  
approach

Design contents

Presentation manner



<ul style="list-style-type: none"> <li>- Several <u>digital tools</u> were employed in the exhibition to attract the audiences, such as <u>sensors, interactive video, AR installation, story video, and lighting animation.</u></li> </ul>	<p>Digital tool employment</p>
<ul style="list-style-type: none"> <li>- The employed digital tools and their presentation ways, including:               <ol style="list-style-type: none"> <li>a. Sensor door as an <u>interactive installation</u> physically <u>divided the exhibition area</u> and let the audiences had a conscious that they stepped in another area;</li> <li>b. <u>Camellia petals animation</u> were projected on screens to add the dynamic of the display;</li> <li>c. A <u>video</u> demonstrating the craftsmanship and production process of the classic suits was looped at the area before the audiences stepped in to visit the haute couture exhibits;</li> <li>d. <u>AR technology</u> was applied to an installation with door function, which represented the office of Coco Chanel. It might increase the sense of participation;</li> <li>e. A <u>surreal video</u> about the dialogues between Coco Chanel and Karl Lagerfeld was played at the site, which delivered the brand design concept;</li> <li>f. <u>Animations</u> were spotted by digital lighting beside the suit displays to demonstrate the craftsmanship of the haute couture.</li> </ol> </li> </ul>	<p>Digital tool employment</p>





- The audiences could write down their thoughts on the camellia post and stick on the installation. Interactivity with audiences
  - Perfume of No.5 was stored in the copper lab installation with five essential raw ingredients and audiences could experience and smell the perfumes.
  - A mobile application “Mademoiselle Prive” was designed and launched to allow audiences to access the exhibition information such as the introduction of featured works and making a visit reservation. The application enabled people to register for a series of workshops and was linked to the dedicated brand website. Digital tool employment
  - Souvenirs such as shopping bag printed with the exhibition logos and posters were assigned to audiences for free. Interactivity
- 


The exhibition atmosphere was created by the particular light setting and the renovation of the exhibition environment, which well-presented the exhibition theme and brand image. The space allocation was coherent that the exhibits were grouped and located with specific areas. The employment of the various digital tools increased the interactivity between the audiences that they could be more engaged in the exhibition activities. Moreover, the collaborative designs with the local designers and the workshops held for the event strengthened the brand effects and increased the interactivity as well.

In contrast, because of the strong brand influence, many people visited the exhibition even the organiser controlled the attendance by making a reservation in advance. The visiting experience was affected by crowded people, especially at the area displaying the garments. Due to the site was decorated with the greige cloth, the corridors were narrow and could not be quickly detected. The aisles were blocked because many people were staying in the area and taking photos that might be shared through social media. Thus, there were some technical conflicts in the launched mobile application. Most audiences would download the application because there was an AR installation that needed to experience with the application, and most exhibition information was provided through the application. However, the reservation could not be completed inside the application and had to link to the outside website. Some audiences might also feel inconvenient to read the information online.

#### **2.3.1.3 Offline Promotional Event by NUNO**

NUNO is a Japanese textile brand that strives to break free of existing aesthetics by practising the industrial processes in less controlled, unconventional ways to allow accidents and unexpected results to happen (Table 2-14). Their designs are combining traditional weaving techniques with state-of-the-art materials and manufacturing techniques. Those special production techniques heavily rely on the expertise of Japan's highly skilled artisans. The textile products developed by NUNO are not designed for a specific purpose. The brand encourages end-users to participate in the creation process to find out the textiles' functions further.

Table 2-14: Background Analysis of NUNO

Items	Descriptions
Key colours	
Product mapping	The product categories include accessories (scarves, socks, purse, umbrella and more), apparel, bags, interior, masks and Japanese featured products (origami, shawls).

The exhibition “Sudo Reiko: Making NUNO Textiles” was organised by Centre of Heritage Arts and Textile and lasted for more than four months. This exhibition faced to all public and especially welcome people who were the textile expertise like textile and fashion designers or had an interest in textiles and Japanese cultures. Based on the technical featured textiles, the exhibition was a presentation that introduced various techniques of making textiles. It highlighted the production process rather than the end products (Table 2-15).



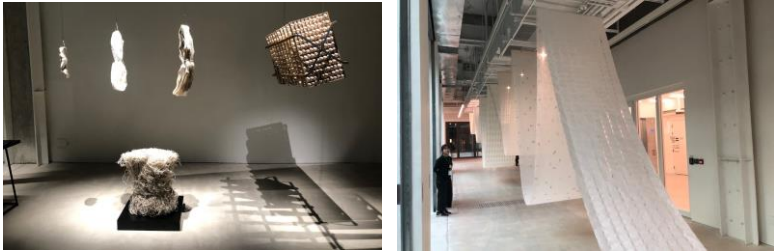

The exhibition conceived eight abstract textile machines to form an immersive installation with visuals and audio to reveal how the displayed textiles were made. Moreover, a series of documentaries in video format produced by the exhibition artistic director Saito Seiichi were screened at the exhibition site. The videos show how factory workers and technicians work and operate with machines on a daily basis. It reveals the fact that the Japanese family-run factories are facing the problem of ageing workers and the loss of successors and their skills.

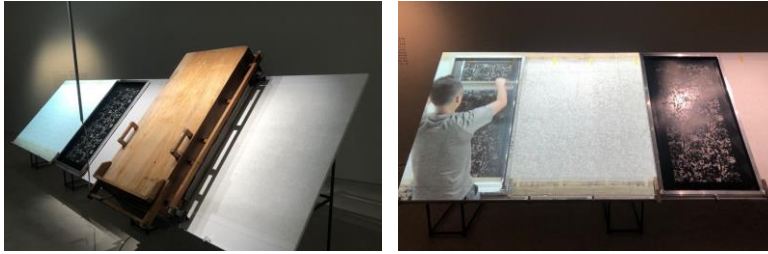
Table 2-15: Information about NUNO's Event and Audiences Analysis

Items	Descriptions
Title	Sudo Reiko: Making NUNO Textiles
Period	21 November 2019 to 3 January 2020
Venue	CHAT, Hong Kong
Purpose/Story	<p><i>“At Nuno, textiles are our language, our inspiration, or aspiration. Textiles tell our story. When we create our textiles, nature and tradition are woven with technology.”</i></p> <p>-- Concept of NUNO</p>
Scale	Medium
Audiences' analysis	<p>The exhibition faced to all public, main target audiences were textile professionals, textile practitioners, people have interest in textiles and people has interest in Japanese culture.</p>

The photos of the presentation exhibition and the methods used to present the event have been discussed and analysed in Table 2-16. The on-site observation was conducted from the perspectives of a) colour scheme applied in the event; b) presentation approaches; c) employment of digital tools; and d) interactivity with the audiences. The coding results of the design factors have been presented in the table as well.

Table 2-16: Offline Observation of NUNO’s Event and Coding Results

Images and descriptions	Codes
<div data-bbox="293 342 1062 590"></div> <p data-bbox="250 611 451 642">Colour scheme:</p> <div data-bbox="431 661 927 737"></div> <ul data-bbox="250 758 1084 957" style="list-style-type: none"><li>- The colours were selected from featured textile products and placed the exhibits in <u>white and grey environments</u> in order to mix the textiles in different colours.</li><li>- The fabrics were grouped by <u>colours</u>.</li></ul>	Colour combination
<div data-bbox="293 993 1062 1241"></div> <ul data-bbox="250 1262 1070 1409" style="list-style-type: none"><li>- The exhibition was displayed in <u>installation</u> format.</li><li>- Each installation had a detailed <u>textile introduction</u> about the design concept, technique using and more.</li></ul>	Presentation approach Design contents
<div data-bbox="492 1444 867 1692"></div> <ul data-bbox="250 1713 875 1797" style="list-style-type: none"><li>- <u>Raw materials and tools</u> were displayed at the <u>entrance/transitional zone</u>.</li></ul>	Design contents Space layout



- The exhibits were grouped based on the textile techniques.
- It was presented by embedding video and audio into installation display in order to elaborate the craftsmanship or manufacturing process.

Presentation approach  
Presentation manner  
Digital tool  
Ambient environment



- Videos about the productions process in the factories were played in the video room.

Digital tool  
Design content



- Audiences could touch the fabrics and read the captions about fabric pieces.

Interactivity  
Design contents

The textiles displayed in installation format provided an option to present textiles and related textile techniques in a new way. The audiences would have an intuitive understanding of the textile production process. Thus, the exhibition atmosphere could be strongly created by installations. The presentation of the design notes, raw materials and production tools helped perceive how the textile design concept was formed and developed. Furthermore, the



experience zone provided the audience with an opportunity to touch the textiles to know the textile materials, textures and structures better.

There were some improvements that could be made for the exhibition. First, the textile techniques displayed in the exhibition were even introduced, the audiences could not figure out the sequences through the exhibits, and they might have a question about was the primary technique employed by the designer. For the related problem, the mass of the installations was presented similarly so that the audiences might feel challenging to find out the focal object displayed at the site. The issue also reflected on the exhibition layout that the audiences might even feel hard to detect the visiting path flow and hover around the exhibits.


### **2.3.2 Online Cases**

#### **2.3.2.1 Brand-specific Online Shop**

##### **1) Issey Miyake's Website**

“Creation and Technology ...”, as saying on Issey Miyake's website, its basic philosophy is the continuing focus on both the importance of imagination and the development of new technology in which to make clothing. Since the brand founded in 1971, Issey Miyake sublimates the tradition into creativity and innovation by challenging the conventional idea of garment making and striving to highlight the relationship between body and cloth. The products feature with Asia and Japanese cultural elements, modern but irregular that can be described in futuristic style. Viewing the designs from Issey Miyake, some craftsmanship elements can be detected. However, they may be produced by high technology, and the quality is ensured. The analysis of the brand background has been presented in Table 2-17.

Table 2-17: Background Analysis of Issey Miyake


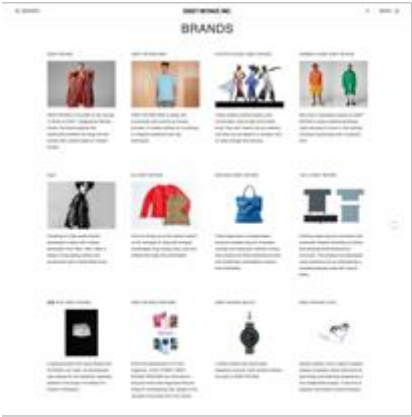




Items	Descriptions
Brand logo	<b>ISSEY MIYAKE INC.</b>
Brand colours	<p>The brand holds the classical colours like white, black and grey and launches seasonal colours regularly.</p> 
Product mapping	<p>There are twelve design lines under Issey Miyake Inc. The products range from fashion, bag, accessories, lifestyle, parfums, watch to eyewear.</p>
Audiences' analysis	<p>Target audiences are the people who are familiar with international brands, upper middle class and loyal to the brand. They might be entrepreneurial, urban adults, individualistic, westernized, and gadget oriented.</p>

There are twelve sub-brands under the corporate now, and the product categories range from womenswear, menswear, accessories, lifestyle, perfume, watch to eyewear. The brand launched the products in limited edition or a collaborative way to attract customers as well. When reviewing the marketing strategies, it was found that the brand appreciates being involved in art-related activities such as an exhibition. It also holds events like store opening ceremony on a large scale to shake public attention.

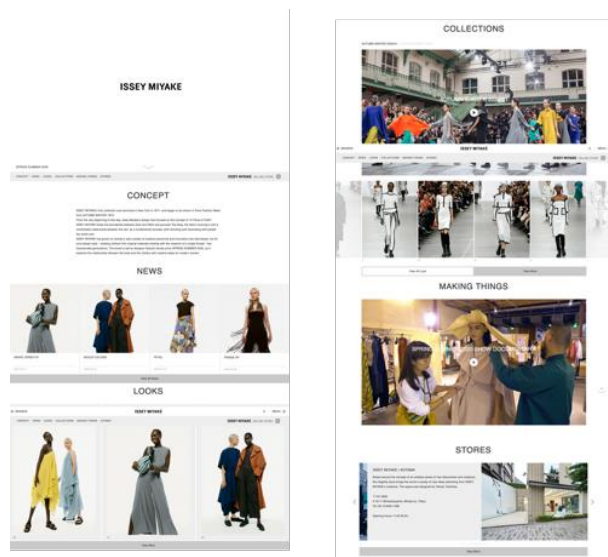
Issey Miyake is concentrating on expanding its brand in the digital world for years by building up the brand portal using video intelligence and more (G. Jones, 2007). The website features a range of interactive elements including videos, blogs and message boards to support the online activity and create emotional responses. Recently, the online shop was

settled to support online shopping within Japan. The website designed in a neutral tone with colours of white, black and grey in order to merge the various product colours. More analysis details about the website contents and visual designs can be referred to Table 2-18.

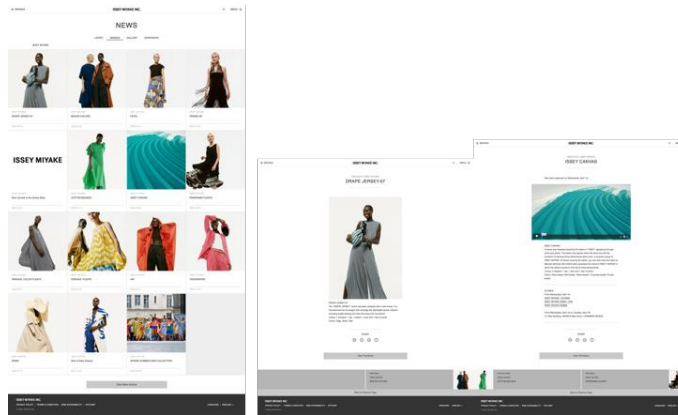
Table 2-18: Online Observation of Issey Miyake’s Website and Coding Results

Images and descriptions	Codes
  	
<p>Colour scheme:</p> <div>    </div>	
<p>- The website is acting as an <u>information distribution centre</u> for the brand. All brands developed by Issey Miyake Inc. are listed out on the homepage. Some brands have independent website are linked to this main website. <u>Seasonal products or representative product photos</u> are selected to demonstrate the brand image and a <u>brief brand introduction</u> is provided under each image to help distinguish the differences among brands.</p>	<p>Design purpose</p> <p>Presentation approach</p> <p>Presentation manner</p>

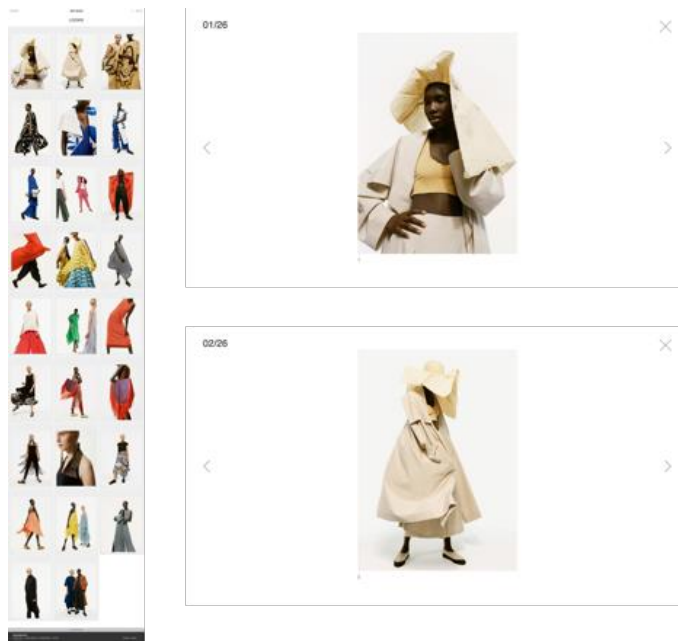
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|---|--|
| <ul style="list-style-type: none"> <li>- The homepage consists of a <u>video</u> of the featured product and a brand list, which designed in <u>the neutral colour tone</u>.</li> </ul>   | <p>Presentation approach</p> <p>Colour scheme</p>      |
| <ul style="list-style-type: none"> <li>- The featured product <u>video is loop played</u> on the homepage and can be clicked to a <u>pop-up window</u> then watch the full video.</li> </ul>  | <p>Presentation manner</p>                             |
| <ul style="list-style-type: none"> <li>- <u>Menu bar</u> can be easily found which is classified into the functions of different pages, such as brands, stores, news, contacts, online store and more. Menu bar can be used to search for a brand or a product, and the brand logos are listed beside.</li> </ul> | <p>Presentation approach</p> <p>Website navigation</p> |
- 



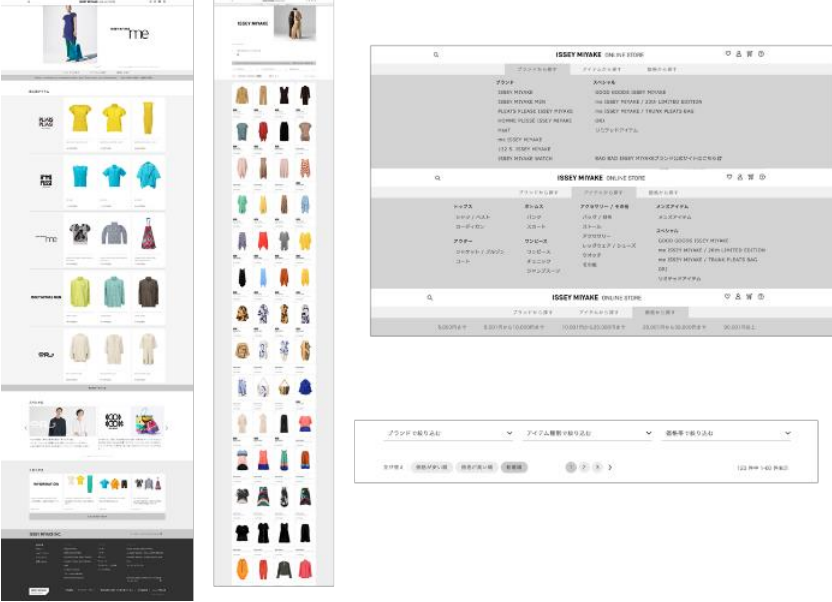
- |  |                        |
|--|------------------------|
| <ul style="list-style-type: none"> <li>- Each brand page consists of seven parts which are <u>a brand logo, concept introduction, news, collection, runway video and photos, an additional video of production-related and store information</u>.</li> </ul> | <p>Design contents</p> |
|--|------------------------|
-

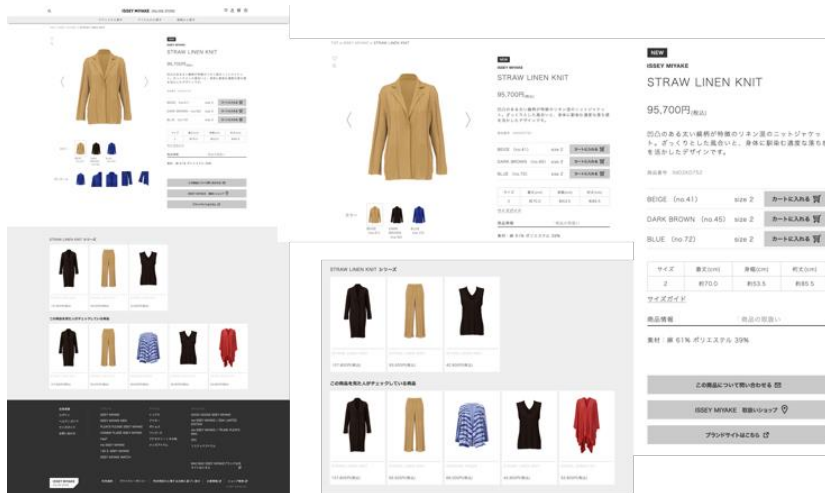


- The contents of the news page include the event information, collection photo gallery and introduction, introduction of featured designs and key technology employed by the product. Design contents
- Each photo listed on the news page is linked to a separate introduction page. Presentation approach
- The format of the pages about featured designs and technology are presented by “Photo/video plus introduction texts”. Graphic layout



- The page of new collection is presented with the publicity photos for promotions. Presentation approach
- This page is designed in photo gallery format and the audiences can click to check the larger photo. Graphic layout  
Website accessibility

	
<ul style="list-style-type: none"> <li>- The <u>online shopping service</u> is established recently but only can be purchased in Japan.</li> <li>- Once clicked the online store page, a <u>new window</u> will be opened, which may <u>physically separate the information page and purchasing page</u>.</li> <li>- The selling products are <u>classified based on brands</u> at first. When clicked to the specific brand, <u>all products under the brand</u> are listed out on the page randomly.</li> <li>- <u>Three kinds of searching methods</u> are provided, which are searching by brands, searching by product category and searching by price.</li> </ul>	<p>Needs of market</p> <p>Needs of customers</p> <p>Website accessibility</p> <p>Graphic layout</p> <p>Design contents</p> <p>Graphic layout</p> <p>Path finding</p>



- The product photo is shoot without model wearing. The photos of the product in different angles and details are provided. Presentation manner
- Photos of one product in different colours are also provided, which can be easily viewed by clicking on the photos. Colour combination  
Website accessibility
- The product details include price, product description, size (with length, width detail), materials, and availability of size.
- Mix and match recommendations for the product are provided at the page bottom. Design contents

The colour scheme developed for the website design well absorbs the different styles among the brands. The photos and videos selected for the presentation are valuable that well present the brand image and designs. The video introduces the technology employed by the textile production is helpful to understand the new technology and the production process. The brand may consider expanding the online market and provide the international shipping service to meet the demand by international customers. Comparing to the photos used to introduce the new collection, the emotional impacts of photos used for online selling are weak. The brand may consider adding the photos wearing by models so that customers will have better an understanding of the wearing effects. One issue that the brand may improve is

the design of the menu bar. Regarding the design of the menu bar, the tabs about the product categories and the brand logos seemed to have a visual conflict that the audiences may feel confused about the differences between these two parts.

## **2) HaaT's Website**

HaaT is a fashion brand under the Issey Miyake Inc., which is conceived from textiles. The brand aims to use comfortable materials with aesthetically pleasing, lighter, and more natural textures for fashion (Table 2-19). As the explanation about the brand name, “HaaT” stems from three similar-sounding words and contains three different meanings that reflects its brand value and design philosophy. “Haat” means “village market” in Sanskrit that includes a diverse range of techniques, textiles, and aesthetics. “Heart” is a reference to the creativity and ingenuity used to impart a warm, heartfelt, human touch to textiles. While another Sanskrit word “Haath” means “hands” that conveys the subtle nuances arising from the collaboration between design emanating from Japan, and the craftsmanship from India.

The brand works to produce long-lasting clothes and accessories with a handcrafted touch. The product lines are limited to clothing and accessories. As the meaning underlying the brand value, the products of the brand need people to have an interest in traditional cultures and be willing to explore the textile values. The brand's designer seeks collaborations with local artisans to produce textiles with unique appearances such as embroidery and fringes through traditional manufacturing techniques and applies into fashion designs to make traditions alive. Therefore, the design theme of each season is different but close to craftsmanship. Due to the particularity of the textiles, the brand designer always wants to



explain and tell the stories behind the textile pieces, and even it is difficult to keep communicating with the customers. In this context, the brand website emphasises the briefing of the design concept and the story of the textiles in order to establish the common values between the customers. The analysis of the brand website has been provided in Table 2-20.

Table 2-19: Background Analysis of HaaT



Items	Descriptions
Brand logo	
Brand colours	Based on the theme of each season's collection
Product mapping	Clothing and accessories
Audiences' analysis	Target customers are people who appreciate craftsmanship and hand-made textile techniques and emphasis on both aesthetics and functions such as comfortability.

Table 2-20: Online Observation of HaaT's Website and Coding Results

Images and descriptions	Codes
	



Colour scheme:

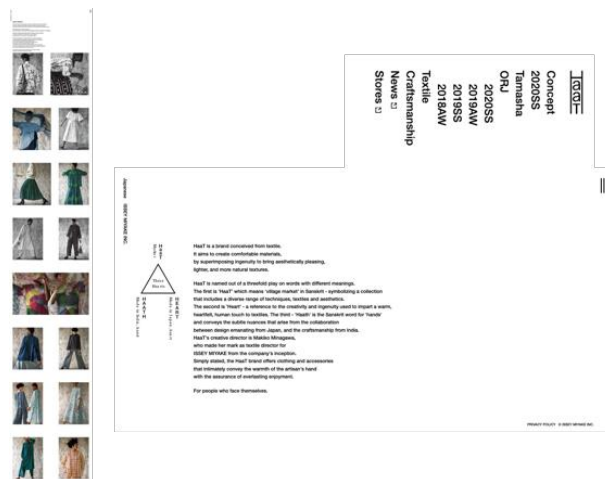


- The main colour of the website is white, black and grey. A changeable seasonal colour may appeal at the greeting page.
- The greeting page consists of a notable brand logo and a navigation bar.
- The website is composed by the pages of concept, seasonal collection, Tamasha (bags), ORJ (a clothing line unusual to the mainline), craftsmanship (special Japanese technique), news and shop list.

Colour scheme

Website navigation

Design contents



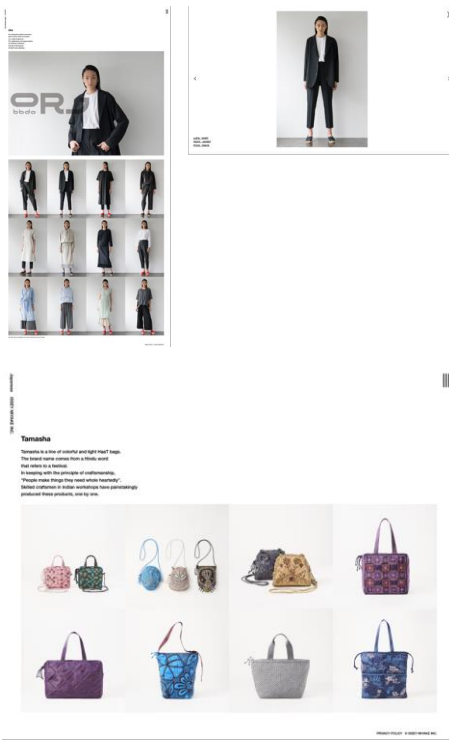
- Concept description is provided at the top of the seasonal collection page.

Design contents

- 
- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>- The collection is displayed with <u>large publicity photos</u> from <u>at least two different perspectives</u>.</li> <li>- <u>When the mouse put on the photo, the description of the product</u> will show on the photo with a non-transparency background automatically.</li> </ul> | <p>Presentation approach</p> <p>Presentation manner</p> <p>Website accessibility</p> |
|--|--|
- 



- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>- The products of the brand feature for their <u>characteristic textiles</u>. There is a special page designed that aims for <u>introducing the textile</u>.</li> <li>- <u>Detailing photos</u> of each textile pieces applied in the new collection is presented on the website. <u>High-resolution photos</u> are listed in order to <u>show the textile details and textures</u> in high quality. Text introduction can also be accessed.</li> </ul> | <p>Design contents</p> <p>Presentation manner</p> |
|--|---|
-

<ul style="list-style-type: none"> <li>- Another special page is assigned to <u>introducing the Japanese techniques</u> employed in the collection designs. It focuses on the <u>manufacturing process</u>, such as the weaving technique and the <u>production of the materials</u>.</li> <li>- The photos are designed <u>in a grid format</u>, which may be helpful to decrease other interference factors for viewing.</li> </ul>	<p>Design content</p> <p>Graphic layout</p>
	<p>Design contents</p> <p>Product complexity</p>

The critical colour of each season has been selected designed for the homepage. The representative colour presents the seasonal theme directly and can attract the attention quickly at the first viewing step. The photos used to deliver the garments are stylish, which can well present the garment features and arouse emotional responses. The setting of showing the image captions when the mouse putting on the photos makes it user-friendly and

may enjoy the convenience bringing from the setting and staying long time to explore the website and view the information. The photos showing the textile details and the info introduces the textile technology make the cognition of the textile design more concrete. However, the visual design seems disconnected because the colour used on the homepage does not continue reflecting on the design of other website pages. Thus, the textile photos and information are limited so that the audiences should find more information on their own ways if they have an interest in the textiles.

### **3) COMME des GARCONS's Website**

COMME des GARCONS is a brand developed by Rei Kawakubo, who is a Japanese-origin designer with no academic background in design and had worked as an advertising stylist. The brand has developed its own creative course, and a faithful target group has emerged (Table 2-21). The brand shares the common features of most Japanese avant-garde fashion designers stood out in the European market that the fashion designer was the spokesperson for the brand. The aesthetics features of the designs are monochromatic, asymmetrical and baggy looks.

The designs of the brand gained attention from the world by challenging strict and arbitrary notions of perfection (Gliniecka, 2016). Those designs appeal to the customers who have demand for freedom in expression, rebel against everything and challenge social norms, both Eastern and Western (Kawamura, 2004). The fashion designer designs the products in a modular design so that people can reflect individual invention and creativity when wearing it. Moreover, the designs abandon the contours of the body and make clothes gender-neutral or

unisex (Kawamura, 2004). In accordance with the brand image of anti-fashion and advent-grade, the design of the website image is shocking by present strong and artistic visual cues and repeat the visual elements. The analysis of the website details is listed in Table 2-22.

Table 2-21: Background Analysis of COMME des GARÇONS


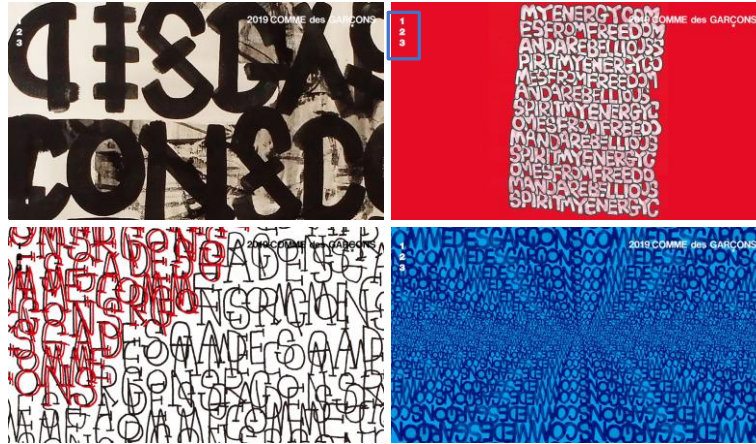
Items	Descriptions
Brand logo	COMME des GARÇONS*
Brand colours	
Product mapping	The brand runs eleven different fashion lines now and aims to different consumer segments. The main product categories are fashion and accessories.
Audiences' analysis	The target customers are the people who have own personality and is not influenced by the latest fashion trend. They may aim to age, class and gender through the clothes and focus on own individual appearance rather than cost.

Table 2-22: Online Observation of COMME des GARÇONS's Website and Coding Results

Images and descriptions	Codes
	



- There are only a few pages presented on the website, but the graphic elements of the brand name are displayed in an artistic way and repeatedly, which may aim to strengthen the brand consciousness. Graphic design
- The seasonal colours or the brand colours are chosen to complete the graphic design that may be easy to accept the season's collection. Colour scheme
- There is no option to shop on the website directly. It may because the products can be purchased through Dover Street Market (a multi-brand retailer founded by Rei Kawakubo). However, this is also no link connected to that retailer. The store list is provided that may guide the customers to purchase at stores. Website accessibility
- Navigation (Blue circled) is provided for pathfinding. Website navigation



- The homepage is used to release the brand latest activity, status, important notice and more. Design contents

As described previously, the website is in a pop-art style, which is in accordance with the brand image. The graphic images composed by the brand name are presented repeatedly, which strengthen the brand cognition. The strong visual style facilitates cognitive effects. The prominent graphic style makes the website distinct from other fashion brands' website. The website does not act the role like other brand websites such as introducing the design concept and display the products. The information about the new collection does not provide on the website. It may work to strengthen the brand image and arouse the audiences' curiosity then further explore and interact with the products at the store in person. However, the forceful visual style makes the information hard to read. The audiences need to spend time to find out the viewing path (e.g., menu bar).

### **2.3.2.2 Platform Online Shop**

#### **1) SSENSE's Website**

SSENSE is a Montreal-based fashion e-commerce with global shipping founded in 2003 (Table 2-23). The brand used the physical store to build confidence with luxury brands for three years before launching the online store in 2006. The brand grows beyond a typical e-commerce entity and explores the developing mode of being the nexus of content, commerce, and culture. According to the information from the official website, the platform serves more than 150 countries and generates an average of 76 million monthly page views. The platform has achieved high double-digit annual growth since inception and become a cultural protagonist in its right.



SSENSE is targeting people at the forefront of fashion trends, which reflects on the curation of the product lines. The retailer adopts a mix selling mode with luxury, streetwear and Avant-garde labels. Moreover, Bassel Atallah, one of the brand founders, said that “SSENSE caters to a millennial audience.” According to a figure from Elle Canada published in early 2017, 80% of SSENSE’s sales were to people aged 18-34, which is exactly the market the brand is intending to penetrate. The average price of the items on SSENSE is in the range of 400 to 500 US dollars, but at the two sale seasons each year, the markdown may reach to 70%, which somehow will attract young audiences. The analysis of the website details is listed in Table 2-24.

Table 2-23: Background Analysis of SSENSE






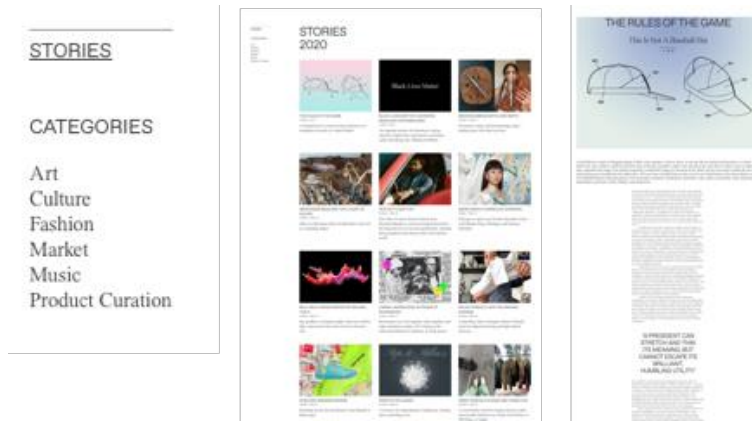
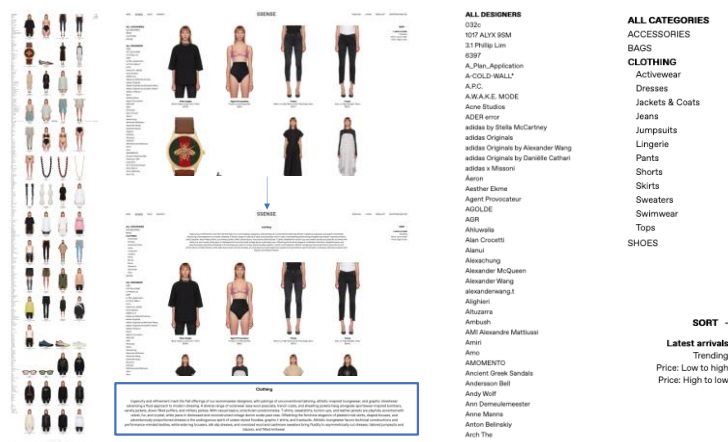
Items	Descriptions
Brand logo	<b>SSENSE</b>
Brand colours	 
Product mapping	SSENSE carries mainly luxury fashion and independent designer brands, with the categories of accessories, bags, clothing and shoes.
Audiences’ analysis	The target customers are millennial audiences, in aged of 18-34 and at the forefront of the fashion trend.

Table 2-24: Online Observation of SSENSE's Website and Coding Results

Images and descriptions	Codes
 <p>The screenshot shows the SSENSE website homepage. At the top, a banner reads 'Further Markdowns Up to 60% Off'. Below this are two buttons: 'SHOP MEN' and 'SHOP WOMEN'. Under 'SHOP MEN' is a black t-shirt with 'Black Lives Matter' text. Under 'SHOP WOMEN' is a hat. Below these are three more product images: a woman holding a large, textured object, a landscape with a pool, and a man's portrait. Each image has a small caption below it.</p>	
<p>Colour scheme:</p> <div data-bbox="571 1058 766 1136">   </div>	
<ul style="list-style-type: none"> <li>- As an integrated shopping website, the homepage of the website is designed <u>in tide and simple style of white and black tone</u> and presents fewer visual elements (e.g., <u>pictures and texts</u>).</li> <li>- The <u>latest promotional activity</u> is put at the top of the page <u>in animation</u> so that the activity information is easy to be seen and noticed once audiences opened the page.</li> <li>- The products are <u>classified into men's products and women's products</u>.</li> </ul>	<p>Design style</p> <p>Colour scheme</p> <p>Presentation approach</p> <p>Design contents</p> <p>Product complexity</p>

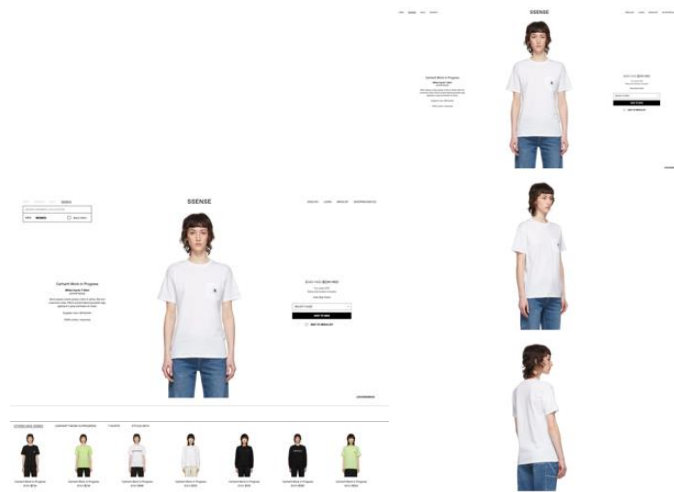


- Below the shopping options, the storyboard is listed on the home page to promote the products and shopping campaigns. Design contents
- The board is presented with a key visual picture linked to a specific article. Presentation manner
- The story themes are classified into the categories of art, culture, fashion, market, music and product curation. Design contents
- The article is composed of detail text description and highlight the important sentences by enlarging the words. Graphic layout



- All selling products are mixed listed on the shopping homepage, and the designer list is provided in an alphabet order on the left side of the page. Graphic layout
- The problem is that there is no quick search function, and the audiences can only scroll down manually to find the desired brand. Path finding
- The problem is that there is no quick search function, and the audiences can only scroll down manually to find the desired brand. Website navigation

- The products are classified into the categories of accessories, bags, clothing and shoe. Each category is further classified based on the product style. Design contents  
Product complexity
- Once clicked into the specific category, a briefing about the category is provided (blue circled). Design contents  
Presentation manner
- Four sort ways are provided for helping find out the proper product. Path finding



- The specific purchasing page is designed with a format in “F” shape. Graphic layout
- Product photo wearing on the model in different directions and product details are listed at the centre of the page. Presentation manner  
Design contents
- Product description is listed at the left side of the product photo to help understand the product, additional information like price. The size chart is on the right side of the page.
- Recommendation products under the same brand are provided at the bottom of the page.

The photos presented on the website are stylish, emotional and attractive, which are with durable visual impacts. The design style of the website is modern, that is in line with the aesthetic orientation of the target audiences. However, the information presented on the story

broad is simply listed on the page without any highlights. The audiences may feel challenging to find out the desired information quickly. There is too much information presented on the homepage, which may cause the information beyond the first opened page being ignored. It is suggested to do not place too much information on the homepage and control the page design in a proper length. Besides, there is no single page listed the selling brand information within the platform. The brand list is placed at the left side of the purchasing page, and the audiences cannot quick search the brand by the first letter or by typing.

## **2) 10 CORSO COMO's Website**


10 CORSO COMO is an Italian fashion lifestyle retailer selling books, fashion and accessories, lifestyle items and beauty items, which created a way to join culture and commerce. It opened stores at Milan, Seoul, New York, Shanghai and Beijing. The brand's multifunctional philosophy allows presenting a unique blend of art, music, design, cuisine and culture from around the world to the world. Its business mode of the brand later became a standard marketing idea "Concept Shop". People both in and beyond the art and fashion scene began to see in this concept, something entirely new and radical for retail and even more for presenting art in the same breath as style.

The brand founder, Carla Sozzani, is a former fashion editor and publisher; the co-founder, Francesco Morace, is a sociologist. The background of the founders and their interests explained why the brand is selling more products in culture categories besides fashion items. The brand uses gallery and bookshop as its core. It structured a living magazine where the

visitors and customers regularly make editorial choices in food and fashion, music and art and lifestyle and design as they engage across so many areas of interest.


The people shopping in the store are willing to find something new, which no matter the new products or recent events held in store. The customers have a peculiar taste in fashion and a mature sense of style. Moreover, they evaluate fashion not only from aesthetical but also from a functional point of view. Therefore, their buying behaviours reflect on visiting the store then a new exhibition opened or regularly like every week. Customers would like to shop in the morning as there are fewer customers at the period so that they may enjoy a more private and free shopping environment. In contrast, they may also visit the store in the evening for socialising purpose (Table 2-25).

Table 2-25: Background Analysis of 10 CORSO COMO

Items	Descriptions
Brand logo	10·corso·como
Brand colours	
Product mapping	<ul style="list-style-type: none"> <li>- Books</li> <li>- Fashion and accessories</li> <li>- Design (Lifestyle)</li> <li>- Beauty</li> </ul>
Audiences' analysis	Target customers are people who have an interest in art and culture, are looking for something new, have their fashion style and sense.

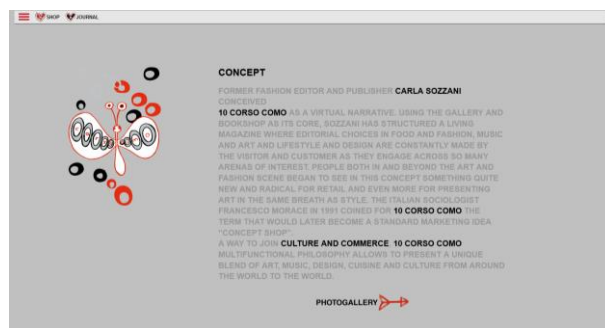
When viewing the displays in 10 CORSO COMO's, they are decorated in an artistic way and high complexity level. For example, creating installations with collaborative artists and displayed in the store, or using wallpaper in the pattern of brand logo circles and high saturation colours to decorate interior design. The brand website is designed in accordance with the store display design principles. More detailed observations and the analysis of the brand website design elements and contexts have been analysed and coded in Table 2-26.

Table 2-26: Online Observation of 10 CORSO COMO's Website and Coding Results

Images and descriptions	Codes
	
<ul style="list-style-type: none"> <li>- The website design style is <u>decorative</u>, with a high density of images.</li> <li>- The website is decorated with <u>hand drawing style decorative pictures and fonts</u>.</li> <li>- <u>Main activities</u> like exhibition are highlighted at hover bar on the homepage and the information is <u>displayed in a picture format</u> with some necessary functional information in the text.</li> </ul>	<p>Presentation manner</p> <p>Design style</p> <p>Presentation manner</p> <p>Design contents</p> <p>Presentation approach</p>

- A journal broad is displayed on the homepage with the articles of current activities, promotional campaigns, featured or popular designs etc. Each article is posted with a key visual picture like activity poster, photo. Audiences can click to the specific articles via the link connected with picture and article title.
- The website contains the function of online shopping, the link of the iShop page is provided on the homepage with the pictures of popular fashion item.

Design contents  
Website accessibility  
  
Needs of customer  
Presentation manner  
Design content



- The brand concept is provided on a specific page with the description of brand vision. Keywords are bolded for highlight.

Design contents  
Graphic design





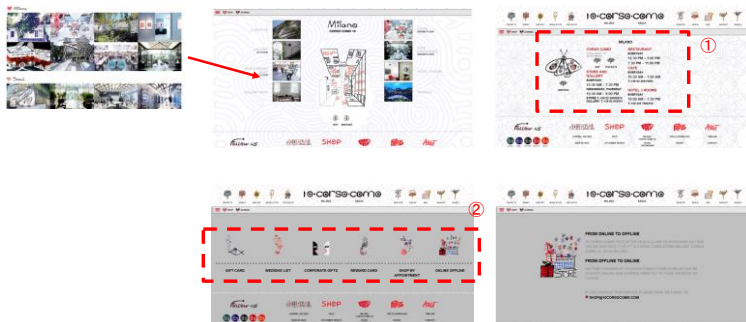


- The photo gallery and the activity archive are included on the website and layout in a list format.
- Once clicked into each activity, a key visual photo is provided at the top of the page and followed by brief activity information. After that is the photo gallery of the activity, each photo can be clicked to a pop-up window to check photo details.

Design contents

Graphic layout

Website accessibility



- As an archive of the brand information, all store information is detailing provided and listed on the website. The photos of all store images are displayed on the homepage. The audiences can click with the photo link to acquire store information.
- The store information includes floor map, location information, business time (circled ①), current activities and services.
- Each hand drawing logo (circled ②) represents a service item with the decorative function as well.

Design content

Presentation approach

Website accessibility

Design contents

Design style

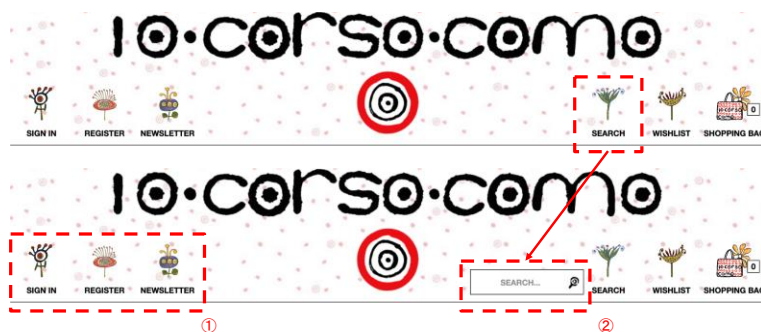


- When clicking the iShop picture on the homepage, it will link to the shopping page.
- The design layout is similar to the website homepage that is highlighted with a photo or video about the seasonal design theme.
- On the shopping homepage, all products are mixed showed on the page, but the product can be searched to filter with the searching function or the navigation bar.

Presentation approach  
Graphic layout

Presentation manner

Path finding



- Customer profile may be collected by the brand (circled ①), in the way of website registration.

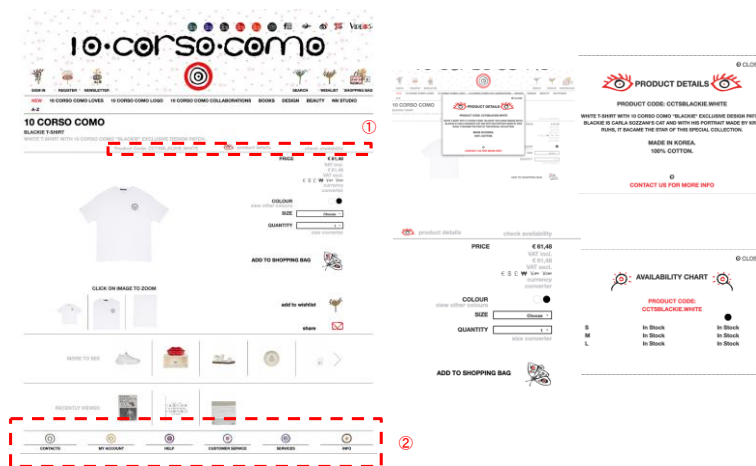
Needs of market

- 
- Newsletter about the latest promotional activities and information are also provided through a quick link (circled ①).
  - Searching function (circled ②) can be found at the menu bar of the website.
  - More navigation functions are also provided in the way of classifying the product categories and brand name sorted in alphabet order.
- 

Design contents

Path finding

Website navigation



- For the specific purchasing page, it consists by the image of the product with zoom-in function (including product details), product description (including price, colour, size, quantity), quick shopping links, mix and match recommendation, and recently reviewed.
  - Product code, descriptions and stock availability can be checked (circled ①), which may seamlessly link the shopping offline and online.
  - The product description includes the description of product features, materials and manufacturing.
  - The shopping assistance links (circled ②) like contact to the retailer, personal account information, help, customer service, and brand information are provided at the bottom of the page.
- 

Presentation approach

Design contents

Website accessibility

The website style follows up the decorative style in offline stores, which is conducive to build up the brand image. The visual consistency is kept by the hand-drawing decorations and brand elements placed in the entire web design. The website works as an online information centre that releases the brand information and offline events. The highlighted information or the information about the current event is placed on the homepage to draw the attention quickly. The service of online purchase has been provided online so that the audiences can buy their interested item online directly. However, both the website design style and the information contents are in high complexity level, which may cause some information is ignored. If the audience is the first time viewing the website, he/she needs to know about the brand or spends more time to search for the information. In this context, the pathfinding of the website should be carefully designed. The decorative style and information clarity should be balanced. It is also found the products provided online are less than the products selling in the offline stores so that the purchasing demand cannot be fully met.

### **2.3.3 Case Discussion**

The cases in offline and online formats were selected based on their differentiation in terms of the business natures, product features, visual merchandising themes, presentation methods. The facts of the display were observed and described, and the similarities of design elements employed in the cases were coded and categorised in the perspectives of layout, ambient condition, digital tools using and interactivity (Table 2-27).

Table 2-27: Discussion of Offline and Online Visual Merchandising Designs

Formats	Design factors	Characteristics
Offline	Layout	<ul style="list-style-type: none"> <li>- The layout has functions of designers designing the offline events display and audiences viewing or participating in the events.</li> <li>- For designers, layout may help map the merchandise, allocate them based on the availability of the physical space and design a smooth path flow.</li> <li>- For audiences, the layout map guides them visit the event in a more reasonable way, which may help locate the exhibit and facilitate to understand the event story</li> <li>- The most used layouts are grid layout, loop (racetrack) layout and free flow layout.</li> </ul>
	Ambient condition	<ul style="list-style-type: none"> <li>- Audiences can directly interact with the exhibits, and more tools can be applied to create ambience in offline cases.</li> <li>- Colour plays a vital role in visual presentation. In offline cases, the colour scheme may develop from the brand colour or combine with the focal object.</li> <li>- Lighting is crucial for creating an atmospheric environment. The intensity, direction, colour of the light, even the shadows created by lights may create different moods. Colourful lights can create dramatic effects.</li> <li>- Wall decoration can also have impacts on ambience creation. Common ways include painting the wall with colours, hanging exhibits or promotional materials on the wall in groups.</li> <li>- Background music can create emotional responses effectively in offline cases if played in a proper volume. It sometime completes by the audio in the video now.</li> </ul>

		<ul style="list-style-type: none"> <li>- The appearance of the mannequins or the fixtures used to display the exhibit also contribute to atmospheric environment and theme narrative.</li> </ul>
	Employment of digital tools	<ul style="list-style-type: none"> <li>- Visual complexity in offline cases can be reflected through the complexity of colour, product categories, display methods and digital tools using.</li> <li>- The complexity should be control in a proper level to create arousal and pleasant feeling. It should not be too low to make the audiences feel boring or too high to arouse anxiety.</li> <li>- More digital tools (e.g., projector, HD screen) are employed to present digital photos and videos at the site now.</li> <li>- There is a trend of displaying the exhibit in an installation way. Some of them are in virtue of the digital tools to narrate the story.</li> </ul>
	Interactivity	<ul style="list-style-type: none"> <li>- More interactivity can be added by involving audiences with the design creation process to let them participate in at the site.</li> <li>- A special area for the game, touching the samples or experiencing the production techniques may enhance the interactivity.</li> <li>- A digital tool like mobile application and AR, VR technologies can be employed to engage the audiences in a virtual world.</li> <li>- Interactivity in offline cases can also complete by distributing souvenir such as brand poster, brochure, shopping bag to the audiences.</li> </ul>
<b>Online</b>	Layout	<ul style="list-style-type: none"> <li>- The fashion brand website may be divided into homepage for greeting, editorial page (to display information such as</li> </ul>

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concept, news), collections, additional information (e.g., store information). Each of them can be assigned with one page.

- The graphic design of most website pages is grid format designed in vertical viewing so that the online information can be viewed easily by pulling the mouse up or down.
- A screen-wide digital showcase may apply on the homepage or put at the top of the sub-pages for highlighting the important information (e.g., current campaign). Usually, themed high-resolution photos or videos are presented in this area to attract attention and arouse emotions.
- The classification of the brands or the merchandise categories are crucial for mapping the products, which is related to what and how the merchandise will be group displayed.
- Purchasing page can be integrated into the brand official website or connected with a purchasing link for an option.
- Menu bar with pathfinding function is important to set for online presentation.
- The searching bar is another practical tool for finding the specific merchandise quickly by typing the keywords.
- Customers may reply on the menu bar, searching bar and sitemap to help them find or filter out the desired merchandise.

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Ambient  
condition

- The principle of colour scheme is to use a neutral colour and combine with the brand colours or seasonal representative colours, which is in accordance with the brand identity and the design theme.
-

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	<ul style="list-style-type: none"> <li>- The background colour of most cases is white or in light tone in order to let the attention focus on the displaying merchandise.</li> <li>- More and more websites use promotional video like fashion film to create an immersive experience to audiences, which aim to create emotional responses.</li> <li>- Some websites may use background music to draw audiences' attention. It is better to provide an option to mute the music to avoid creating any boredom.</li> </ul>
Employment of digital tools	<ul style="list-style-type: none"> <li>- Most websites play the role of an information distribution centre.</li> <li>- Video and photo are two frequently used tools to present the merchandise. A video may be loop played automatically, and audiences can view the full video if they have an interest in it.</li> <li>- Photos are displayed in the methods of "photo gallery" or "photo matches with the briefing in text". The zoom-up function is helpful to check the textile details and textures.</li> <li>- The photo formats are various, including publicity photo, clothes-wearing on a model, clothes without a model, detailed photos.</li> <li>- Highlighted information may be displayed with an animation.</li> </ul>
Interactivity	<ul style="list-style-type: none"> <li>- The methods to create interactivity are limited.</li> <li>- The most frequently used tool is the video that can create an immersive experience.</li> <li>- Social media is another way for a brand to build a public image, interact with consumers and receive feedback in the digital world.</li> <li>- A few of websites provide interactive online games.</li> </ul>

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## **2.4 Significance of Digital Visual Merchandising on Increasing Brand Experience**

Brand experience is conceptualised as sensation, feeling, cognition, and behavioural responses evoked by brand-related stimuli (e.g., colours, shapes, typefaces, designs, slogan, mascots, brand characters) that are part of a brand's design and identity, packaging, communications, and environments (Brakus, Schmitt, and Zarantonello, 2009). It has five dimensions that are sensory, affective, intellectual, behavioural and social. The brand experience differs from evaluative, affective, and associative constructs, such as brand involvement (Zaichkowsky, 1985), brand attachment (Thomson, MacInnis, and Whan Park, 2005), customer delight (Oliver, 2014), and brand personality (Aaker, 1997). Brand experience may result in emotional bonds, but it is not an emotional relationship concept because emotions are only one internal outcome of the stimulation that evokes experience. Brand experience occurs whenever there is a direct or indirect interaction with the brand, so that can cause by both expected and unexpected elements.

Visual merchandising acts as a strategic role in communicating the brand and its offers with similar target customers in all markets (H. H. Park et al., 2015). Durable visual merchandising design enhances brand experience through cultural symbols and associations (Matthews, Hancock, Joseph, and Gu, 2013), which can differentiate merchandise and the retail brand from competitors selling comparable products (Mehta and Chugan, 2013). Visual stimuli assist in differentiating products, creating loyalty, allowing for premium pricing, cutting through the clusters, and protecting against the competitor (Schmitt and Simonson, 1997). Moreover, visual display adds to audience's perceptions of brand image and character. It establishes a context in which to identify and purchase fashion retail brands (M. C. Cant

and M. Y. Hefer, 2012). When comparing the design factors in visual merchandising, it can be found that similar design factors also work on the brand-related stimuli that can trigger a particular experience dimension and further result in emotions or intellectual experience.

As mentioned in previous sections, digital visual merchandising is a branch stemmed from the traditional visual merchandising and can present through offline and online channels. It suggests that through offline and online digital visual merchandising, brand experience not only provides brand differentiation and loyalty but also increases sales and create advertising impact as well as developing strong ties between consumers (Brakus et al., 2009; Morrison and Crane, 2007). The performance of the digital visual merchandising is significant to establish the brand experience. Thus, to confirm the effectively influential design factors in digital visual merchandising in the design may affect audiences' cognitions and perceptions of the merchandise, then enhance the brand experience.

## **2.5 Summary**

Visual merchandising in terms of its strategies and affecting factors were studied to form a concept of digital merchandising design and its design strategies. The differences between traditional visual merchandising and digital visual merchandising in perspectives of design process, design contents, design factors and design forms were studied and discussed.

Theories of information management and psychological effects were studied to know about principles and factors that may facilitate the performance of digital visual merchandising design. Offline and online cases differentiate in the design theme, complexity and presentation approaches were selected as the typical examples to study and explore the

digital visual merchandising design factors. Finally, the significance of digital visual merchandising on brand experiences was discussed. In summary, in this qualitative research, the visual merchandising theory and factors affecting digital visual merchandising provided a basis to further access the design factors in the digital visual merchandising design and the design contexts underlying each factor.

## **CHAPTER 3      METHODOLOGY**

### **3.1 Introduction**

This study was carried out by adopting a qualitative research methodology with the inductive approach in the development of grounded theory. As said by Stokrocki (1991), “Qualitative research is a way of observing, interpreting and analysing experience in an attempt at understanding participants’ ideas and beliefs about it. Qualitative research is concerned with describing specific instances for many viewpoints and with discovering several variables in the process”. In this study, the research design combined on-site observations and document reviews to collect the raw data and formulate the grounded theory for digital visual merchandising design in offline and online formats. Four design matters, namely “institutional advocacy”, “subject matter advocacy”, “audience advocacy” and “design advocacy” were detected from the theoretical study, which employed as the baseline for the on-site observations and document reviews. The design factors in digital visual merchandising design were identified through a process with steps of data coding, comparative analysis, theoretical coding and presentation of analysis. A conceptual model for the digital visual merchandising design was established based on the identified design factors. Thus, some hypotheses were assumed based on the conceptual model that would be verified in the design implementations to develop a grounded model.

### **3.2 Research Design**

The research design comprises of the six-step methodological procedure. The first step was to conduct the literature review about digital visual merchandising to complete the whole theoretical framework, which was accomplished by two phases. The first phase was to study on the digital visual merchandising theories to form the concept of a digital visual merchandising, strategies developed for digital visual merchandising and analyse the factors may impact the developments of digital visual merchandising. The visual merchandising design process was compared with the design process in other design fields to help propose a conceptual digital visual merchandising design model. At the same time, the characteristics of innovative textiles and fashions were classified and provided a method to measure the innovation level of the promoted textiles and fashion. In the second phase, a comprehensive study of the factors affecting digital visual merchandising performance had been studied. The mechanism of information management was learnt. Psychological effects were reviewed to identify what are the arousing stimuli can be applied to the digital visual merchandising design. The properties affecting aesthetics experience was studied as well to figure out the factors that may affect the perception of the introduced textiles and fashion.

The second step was to conduct empirical research on the existing digital visual merchandising cases. The case study is a research method that allows the exploration and understanding of complex issues through reports of past studies (Zainal, 2007). The cases help explain both the process and outcome of a phenomenon through comprehensive observation, reconstruction and analysis of the facts under investigations (Tellis, 1997). The case studies have been conducted from three perspectives. The first perspective was about the

offline promotional events that employing digital tools, which was specific to events and pop-up stores by field studies. Another view was about the online digital visual merchandising designs that were specific to the fashion website designs by online reviews. The third perspective was about the existing tools had be applied for digital visual merchandising by document review.

The third step was to identify the potential digital visual merchandising design factors through the method of open coding based on the collected data form on-site observations and document reviews. By coding the concepts and grouping them into categories, the potential digital visual merchandising design factors were identified. Two metrics were developed in this stage for analysing the offline and online digital visual merchandising designs, respectively.

A conceptual model of digital visual merchandising was proposed in the fourth step by integrating the knowledge of visual merchandising theory and factors that may affect digital visual merchandising design performance. The design process model was set as the outline of the conceptual model and the design process divided to the phases of concept development, scheme design, design construction that were assigned to correspond to the components of stimuli in the studied S-O-R model.

The fifth step in the methodological procedures was to implement the proposed conceptual model in practical designs in both offline and online occasions to verify the accuracy of the identified design factors and the relevance underlying the factors. The practical digital visual

merchandising designs applying the conceptual model for innovative textiles and fashion merchandise were designed and presented in the formats of the website publishing, offline fashion show, offline exhibition and online exhibition, respectively. Three implementations have been selected and reported in the thesis. The analysis of the designs was conducted from two perspectives. The first perspective was to analyse the practical designs according to the identified design factors. The second was to discuss the performance of the digital visual merchandising design results. Based on the findings in implementations, the design factors were confirmed, and the design contexts in each design factor were interpreted. The relevance between the design factors in the digital visual merchandising was revealed. A grounded model of the digital visual merchandising design was established in the sixth step.

### **3.3 Theoretical Background of Methodology**

#### **3.3.1 Grounded Theory**

In this study, the grounded theory was employed to identify the influencing design factors in digital visual merchandising design for innovative textiles and fashion and help build the fundamentals of the model. Grounded theory is an inductive approach in the development of theory from data (Moghaddam, 2006). According to Glaser (1992), grounded theory methodology was used to generate an explanatory theory that sensitively and integrated and presented reality. Glaser, Strauss, and Strutzel (1968) also contended that grounded theory was a systematic, qualitative process used to generate a theory to explain at a broad conceptual level. It can provide the researcher with analytic tools for handling masses of raw data and help consider alternative meanings of phenomena.

The grounded theory approach consists of a set of steps and processes, which are the blocks to build a quality grounded theory. Identifying, developing and relating the concepts that are the building blocks of the theory (Moghaddam, 2006). Concepts are the basic units of analysis and were conceptualised from the collected data, which are analysed based on the raw data (J. M. Corbin and Strauss, 1990). The grounded theory uses categories drawn from respondents and focuses on making implicit belief system explicit. Categories were generated through the same analytic process of making comparisons to highlight similarities and differences that are used to produce lower-level concepts (J. M. Corbin and Strauss, 1990). The identified conceptual relationships between a category and its concepts and between discrete categories are the propositions that can be proposed for the establishment of a theory (Whetten, 1989). The whole process of the establishment and evolution of concepts, categories and propositions is iterative.

The analysing and interpretation of the collected data is an integral part of grounded theory. The analysis and interpretation process involves employing particular coding procedures, which consists of naming and categorising data (Babchuk, 1996; Moghaddam, 2006). In the analysis process, core issues can be found and conceptualised from or within the massive pile of the data. The method of open coding technique can be employed for data analysis. It is suggested to be open mind when conducting the coding and avoid predetermined ideas. Attention should be paid to two perspectives. The first is to identify the key point and let concepts emerge; and the second is to select the attributes with qualitative coding analysis and protect against data overload (Allan, 2003).



### **3.3.2 Open Coding**

Open coding is the initial stage for qualitative data analysis. It is the process of breaking down the data into separate units of meaning (Goulding, 1999). The main purposes of open coding are to conceptualise and label data (Moghaddam, 2006). Open coding contains the process of building concepts, abstracting the concepts, defining categories (Khandkar, 2009). In the course of open coding, the grounded theorist engages in breaking down, analysing, comparing, labelling and categorising data. Incidents or events are labelled and assembled through constant comparison to form categories and properties (Babchuk, 1996).

A concept means a labelled section of data that identified as significant to some facts.

Concepts are abstract representations of events, objects, actions or interactions, and they allow similar information to be grouped. In the process of labelling important information, the data will continue to be analysed by breaking into distinct ideas, events or objects. In this further process, the events or objects can be summarised with common characteristics, yet other properties may separate them (Moghaddam, 2006).

Common properties and characteristics are the base to define the categories. Common properties can be grouped under the same concept. The code name can be named based on the context. In other words, concepts with the same properties or characteristics can be grouped into one category. Once categories are built in open coding process, they are expanded in terms of their given properties and dimensions (Goede and De Villiers, 2003). Dimensions show the position of a property along a continuum or range. Properties and dimensions provide the richness to the abstract category. After the categories were defined

with property and characteristic details, a complementary way called “supplementation” can be situated between coding and theoretical sampling. Supplementation starts with an extant category (Moghaddam, 2006).

### **3.3.3 Empirical Research**

The case study is a kind of empirical research strategy examine a phenomenon in its real-life context, especially when the boundaries between phenomenon and context are not evident (Yin and Gwaltney, 1981). There are two basic case study design types. The first is the single-case design that can be used to test a theory, especially in a disconfirming role (Neale, 1973). The second type is multiple-case design, in which conclusions are drawn from a group of cases. It is intended to be the basis for replicating or confirming the results. The strategy for cases selection is to select extreme or exemplary cases (Patton, 1980).

Case study design should specify the main topic to be covered, the type of individuals (or their roles) from whom information might be obtained, and the unit of analysis at the case level as well as within each case. According to Yin (1981), typically, three essential topics can be figured out from the case study. They are a) the nature of the knowledge-producing unit (e.g., research project); b) documentation of the types of uses of the knowledge produced; and c) assembling of facts to compare alternative explanations of why utilisation occurred.

Regarding the analysis of the case study, Weiss (1979) had enumerated seven models of utilisation, and three were deemed most relevant for the present research and can be applied

to the single-case analysis. They are a) the knowledge-driven model (good basic research eventually leads to practical applications); b) the problem-solving model (utilisation depends upon the prior identification of a problem, followed by the commissioning of specific research); and c) the interactive model (utilisation occur because knowledge-producers and knowledge-users are in continual communication with each other). In situations where some conditions do not prevail, an alternative approach, a method called case-comparison can be used. The entire explanation from each case is taken and compared with the explanation from other cases (Yin, 1981).

### **3.3.4 Instrument Development and Refinement**

In this study, the instruments of on-site observation and document review were employed for data collection from the case study. The research methodology was designed by the supports of the collected data, inclusive stimuli, responses and behaviours to digital visual merchandising design. The design matters the digital visual merchandising design was classified with institutional advocacy, subject matter advocacy, audience advocacy and design advocacy. The responses and behaviours to digital visual merchandising design include emotional responses, physiological responses, approach and social interaction. Two checklists with checking details of offline and online cases were developed for on-site observation and document review respectively and helped analyse the influencing design factors for proposing a digital visual merchandising design model.

#### **3.3.4.1 On-site Observation**

On-site observations were carried out for offline cases to observe how people were visiting and interacting with the digital visual merchandising. Observation can be carried out purposefully to serve research questions and objectives by planning (Zohrabi, 2013). It is a kind of data triangulation to “substantiate the findings” (Merriam, 1998) and used to record behaviours and events when they occur (Guba and Lincoln, 1981). This technique can state the observers “study the subjective factors objectively” (Fraenkel, Wallen, and Hyun, 1993). Observational data represent a first-hand picture of the events and is carried out in a natural scenario setting and enable the researcher to obtain contextual factors (Zohrabi, 2013). When conducting on-site observation, the observer should study the representations of behaviour rather than the behaviour itself (Davis, 2008). The observer needs to determine the setting and identify what to be documented in advance to make the observation more effectively (Zohrabi, 2013).

#### **3.3.4.2 Document Review**

Document review is a systematic procedure that usually employed for reviewing or evaluating informative materials, which covers the information published in both printed and electronic platforms. Electronic materials include both computer-based and internet-transmitted materials (Bowen, 2009). Document and record analysis serves an additional grounding function that helps the inquirer maintain interest in the context and assists to ensure that research is not moved from its social, historical and frames of reference (Guba and Lincoln, 1981). Document analysis requires that data be examined and interpreted to elicit meaning, gain understanding and develop empirical knowledge (J. Corbin and Strauss,

2008; Rapley, 2008). Review documents can be a case of the text providing context, and the documents' information sometimes can help raise questions and find the research gap. Thus, document review can provide supplementary research data, which is a mean of tracking change and development. It is also a way to verify findings or corroborate evidence (Bowen, 2009).

### **3.4 Checklist for On-site Observation and Document Review**

Two checklists were developed on the purpose of on-site observation and document review for offline and online digital visual merchandising designs. The details about the checkpoints of offline and online designs are presented in Table 3-1 and Table 3-2, respectively. The on-site observation was applied to offline visual merchandising design cases that employing digital tools. The observation on offline merchandising design cases concentrated on the promotional event presentations. Document view was conducted focusing on the online visual merchandising cases. The cases related to innovative textiles/fashion presentation, such as fashion/textile websites, fashion shows and electronic promotional materials from the range of catalogue, brochure, look book, fashion video to fashion film were collected and reviewed.

The checklists were developed based on the four design matters defined in Chapter 2.2.1.2, including institutional advocacy, subject matter advocacy, audience advocacy and design advocacy. Institutional advocacy includes the information and the contents of the brand related. Subject matter advocacy is related to the perspectives of the merchandise itself (i.e., innovative textiles and fashion). Target customer and audience is another point that belongs

to the audience advocacy. Design advocacy is related to the design details of digital visual merchandising, which may include the aspects of environmental stimuli, visual presentation and space allocation.

The first checkpoint is to confirm what is the primary matter focused by the digital visual merchandising and which platform will be employed for the design (e.g., website, pop-up store, special event). Then, the rest matters can also be measured based on the set checkpoints. Institutional advocacy includes the information and the contents of the brand-related information. Subject matter advocacy includes the points of product style and categories, design contents of innovative textiles and fashion, and the information accessibility and integrity about the presented innovative textiles and fashion. Audience advocacy includes the investigation of the target audiences, the interactions between the merchandising and audiences, social supports to the merchandising display and the satisfaction by the audiences. Due to the design advocacy is related to the merchandising design details, this matter can be checked separately. The checking process of design advocacy includes the presentation approaches and their designing style employed in the digital visual merchandising design. It can be conducted from the format and the contents designed for the presentation. The methods used to divide the space, product mapping and the path for the visiting can be check finally.

Table 3-1: Checklist for Offline Digital Visual Merchandising Design

<b>Design matters</b>	<b>Checkpoints</b>
Institutional advocacy	Brand related information
Subject matter advocacy	Product style and categories Design contents Information accessibility and integrity
Audience advocacy	Target audiences Interactions between the merchandising and audiences Supportive social climate Psychological satisfaction
Design advocacy	Platform for design presentation Presentation manner Physical facilities employment Digital tools employment Colour scheme Atmosphere Product mapping Methods for the space allocation Path flow

Table 3-2: Checklist for Online Digital Visual Merchandising Design

<b>Design matters</b>	<b>Checkpoints</b>
Institutional advocacy	Brand related information
Subject matter advocacy	Product style and categories Design contents Online accessibility
Audience advocacy	Target audiences

	Information integrity
	Supportive social climate
	Psychological satisfaction
Design advocacy	Platform for design presentation
	Presentation manner
	Digital tool employment
	Colour scheme
	Atmosphere
	Product mapping
	Methods for the space allocation
	Navigation

### 3.5 Data Collection

The raw data was collected through the on-site observations and document reviews during the empirical research study from offline and online cases. Offline cases were studied based on the literature review on the techniques of traditional visual merchandising like store displays. New presentation forms like pop-ups store and exhibition display for textiles and fashion were also studied. Three offline promotional events held by the fashion brands were observed. The cases were selected based on the different brand design style, target audiences, physical space layout, design contents (i.e., circulation quality and continuity, exhibit element interrelations), visiting behaviours (i.e., visiting time, backtracking and exiting behaviour) (Guler, 2015) and digital tools employment. The theoretical knowledge about online designs such as website design, virtual store design, strategies of online retailing, and online atmospheric creation was acquired from the document reviews. Online cases about



three fashion brand websites and two platform websites were processed and observed based on the differences in brand styles, design concepts, the complexity of product category, visual presentation, and display approaches.

### **3.6 Data Analysis Procedures**

#### **3.6.1 Data Sorting**

There are two kinds of data collected from on-site observation and document review. Data collected from on-site observation are in picture format, while data from document reviewed are in text format. The data in picture format were filtered and classified first, and then described in texts based on the observation results. All collected data were transcribed into the word processing programme to provide a basis for data analysis. The collected data were sorted into categories as the initial classification principles based on the summarised design matters of digital visual merchandising design.

Coding started with the identification of the first level abstraction that aimed to identify design factors with the collected data from the literature review and case study. By sorting the data from the mentioned resources, the descriptions related to the offline and online digital visual merchandising design were excerpted and described based on the features. Then, each abstraction was given a code name and classified with related themes. The baseline of the coding was set with the perspectives of design concept development, presentation approaches, digital tools employment, audiences' responses and so forth. Based on this process, a coding guide was developed and was used for the rest of the collected data.

The raw data and the coding results and analysis of on-site observation and document review of the offline and online data were provided in the in Chapter 2.2.1.2.

### **3.6.2 Comparative Analysis**

The codes acquired from the coding process compared and summarised based on their similarity. Some codes were refined with a more accurate description, and some codes were combined into broader categories. This comparative process was continued to ensure that all the described abstracts were capable of accounting for all related observed incidents in the data. Through this process, the developing abstract gradually reduced and upgraded to higher category orders, which covered more variations. The developed results were presented in Table 3-5.

### **3.6.3 Theoretical Coding**

The design factors involved in the digital visual merchandising design, namely “concept formation”, “ambient condition”, “layout design”, “visual complexity level” and “interactivity level” were emerged by analysing the data collected from the four design matters. A mechanism describing how information (i.e., design stimuli) was processed in the digital visual merchandising design was formed and elaborated. By exploring the relationships between the factors and analysing their roles played in the design matters, the relevance underlying the design factors was revealed. The deduced five factors were integrated into an established conceptual model. By implementing the model in offline and online practical designs, the factors that influence digital visual merchandising design were

verified. A grounded model improved from the conceptual model about digital visual merchandising for innovative textiles and fashion was developed and presented.

#### **3.6.4 Presentation of Analysis**

With the coding concepts and categories, two checklist matrixes were developed based on the codes and further extracted to detect the design factors in the digital visual merchandising design and the design contexts containing in the factors. The matrixes were classified into three categories. The first-order category was developed based on the previous theoretical study about the design matters, including institutional advocacy, subject matter advocacy, audience advocacy and design advocacy. The contents containing in the first category were explained in the second-order category based on the on-site observation and document review results. By analysing the concrete design works and their relevance between the design elements, the digital visual merchandising design factors were summarised into the third-order category including concept formation, ambient condition, layout design, interactivity level and visual complexity level. Forms were employed to present the analysis results of each group, including a) checklist matrix for offline visual merchandising design; b) checklist matrix for online visual merchandising design; and c) meta-matrix for digital visual merchandising design.

### 3.6.4.1 Checklist Matrix for Offline Digital Visual Merchandising Design

The checklist for offline visual merchandising design is presented in Table 3-3.

Table 3-3: Checklist Matrix for Offline Digital Visual Merchandising Design

First-order category	Second-order category	Evidence
Institutional advocacy	Brand concept	<i>“brand icons”</i>
	Cultural impact	<i>“cultural attractions”</i>
Subject matter advocacy	Seasonal theme	<i>“main displaying exhibits are new collection”</i>
	Product complexity	<i>“representative products”</i> <i>“classic products”</i>
Audience advocacy	Target customer/audience	<i>“the target audience of the exhibition should be defined”</i>
	Needs of customer/audience	<i>“the purposes of the exhibition visiting”</i>
	Interactivity with audience	<i>“souvenirs”</i>
		<i>“poster distribution”</i>
	Visiting behaviour	<i>“visitor will usually not backtrack”</i> <i>“visiting time spent”</i>
	Social media support	<i>“mobile application launched for exhibition”</i>
Design advocacy	Interestingness	<i>“backtrack occurs when a very interesting exhibit elements was presented”</i>
	Design style	<i>“immersive display”</i>
	Design content	<i>“environment can be created with immersive, themes, and theatrical elements”</i> <i>“visitors need clues indicating the exhibition continuity”</i> <i>“documentary video”</i>
	Colour scheme	<i>“brand colours”</i>

Lighting	<i>“lighting in special colour”</i>
Audio	<i>“background music”</i> <i>“video sound”</i>
Scent	<i>“try-on with perfumes”</i>
Touch	<i>“touch the fabric samples”</i>
Atmosphere	<i>“browsing or impulse buying were found to be influenced by atmosphere”</i> <i>“environment can in themselves be considered another form of interpretive media”</i> <i>“environment can be created with immersive, themes, and theatrical elements”</i> <i>“atmospheric variables had an impact on the affective state of visitors”</i> <i>“Vintage furniture”</i> <i>“displayed with flowers”</i>
Product mapping	<i>“grouped the exhibition based on different techniques”</i>
Space layout	<i>“positioning of directional signage, the presence of contextual and the location of choice points”</i> <i>“exhibition space”</i> <i>“exhibition space’s shape”</i> <i>“viewing distance”</i> <i>“exhibit element locations should be create a sense of connectedness and continuity”</i>
Path flow	<i>“visitors should be able to see the exhibition space to create a visit plan”</i> <i>“circulation path”</i> <i>“exhibition map”</i>

Presentation approach	<i>“installation collaborated with artists”</i> <i>“dressing on mannequins”</i>
Presentation manner	<i>“display in dark environment”</i> <i>“showcase”</i> <i>“installation embedded in video”</i>
Physical facility employment	<i>“lighting mannequins”</i> <i>“showcase”</i>
Digital tool employment	<i>“video”</i> <i>“animation”</i> <i>“projector”</i> <i>“HD screen”</i>
Technology employment	<i>“sensor door”</i> <i>“AR technology”</i>

#### 3.6.4.2 Checklist Matrix for Online Digital Visual Merchandising Design

The checklist matrix for online visual merchandising design is presented in Table 3-4.

Table 3-4: Checklist Matrix for Online Digital Visual Merchandising Design

<b>First-order category</b>	<b>Second-order category</b>	<b>Evidence</b>
Institutional advocacy	Brand concept	<i>“brief brand introduction”</i> <i>“brand logo”</i> <i>“concept introduction”</i>
	Needs of market	<i>“online shopping service”</i>
Subject matter advocacy	Seasonal theme	<i>“seasonal products”</i> <i>“designed in seasonal colours”</i>
	Product complexity	<i>“products of different brand under on company”</i>

Audience advocacy		<i>“special product lines”</i>
		<i>“men’s products and women’s product”</i>
	Target	<i>“customer profile”</i>
	customer/audience	
	Needs of	<i>“online shopping service”</i>
	customer/audience	
	Website	<i>“pop-up window”</i>
	accessibility	<i>“video was loop played”</i>
		<i>“clicked to check larger photo”</i>
		<i>“product description will show once mouse stat on the photo”</i>
	Website navigation	<i>“menu bar”</i>
		<i>“searching function”</i>
		<i>“filtered by brands”</i>
		<i>“brand listed in alphabet order”</i>
	Website security	<i>“financial security”</i>
		<i>“privacy”</i>
	Customer participation	<i>“low task-relevant cure”</i>
	Social media support	<i>“social media account linked with the website”</i>
	Convenience	<i>“Convenience”</i>
	Interestingness	<i>“interestingness has positive effect on consumer’s attitude”</i>
		<i>“Entertainment is positively related to site attitudes”</i>
		<i>“interactivity and vividness directly affect social presence”</i>

	Vividness	<i>“interactive and vividness is associated with increased feelings of telepresence”</i>
Design advocacy	Design purpose	<i>“information distribution centre”</i>
	Design style	<i>“more likely to shop and return to well-designed web sites”</i> <i>“designed with decoration”</i> <i>“high density of images”</i>
	Design content	<i>“site organisation and content”</i> <i>“news”</i> <i>“collection book”</i> <i>“runway video and photos”</i> <i>“video of production technology”</i> <i>“store information”</i> <i>“product description”</i> <i>“mix and match”</i> <i>“latest activity”</i> <i>“important notice”</i> <i>“story board”</i> <i>“editorial page”</i> <i>“additional information”</i>
	Information integrity	<i>“information content”</i>
	Colour scheme	<i>“the chroma and the hue combination of the texts”</i> <i>“cool colours”</i> <i>“website background colour”</i>
	Audio	<i>“video sound”</i>



Ambient environment	<i>“atmospheric variables”</i>
Product mapping	<i>“classified based on brands”</i>
Path flow	<i>“new window opened by clicking”</i>
Presentation approach	<i>“fidelity and motion of images”</i> <i>“product photos”</i> <i>“publicity photos”</i> <i>“animation”</i> <i>“video presented product features”</i> <i>“eBook”</i>
Presentation manner	<i>“photo gallery”</i> <i>“photo or video plus introduction in texts”</i> <i>“product photo with/without model wearing”</i> <i>“presented one product in different colour options”</i> <i>“photos from at least two perspectives”</i> <i>“quick view”</i> <i>“detailing photos in high resolution”</i> <i>“highlight important sentences”</i>
Technology employment	<i>“new technologies can enhance the shopping experience”</i>

#### 3.6.4.3 Meta-matrix for Digital Visual Merchandising Design

The meta-matrix for the digital visual merchandising design was formed by grouping the checklist results that summarised in the second category. The concepts received from the second category was further summarised into the third category, which was regarded as the

identified design factors in the digital visual merchandising design. The sorting results are shown in Table 3-5.

Table 3-5: Meta-matrix for Digital Visual Merchandising Design

<b>First-order category</b>	<b>Second-order category</b>	<b>Third-order category</b>
Institutional advocacy	Brand concept	Concept formation
	Brand Style	Visual complexity level
	Needs of market	Concept formation
	Cultural impact	
Subject matter advocacy	Seasonal theme	Concept formation
	Product complexity	Visual complexity level
	Target customer/audience	
	Customers/audience segment	
	Needs of customer/audience	
Audience advocacy	Website accessibility	Interactivity level
	Website navigation	
	Visiting behaviour	
	Path finding	
	Website security	Visual complexity level
	Customer participation	
	Social media support	Interactivity level
	Convenience	
	Interestingness	
	Vividness	
	Psychological satisfaction	
Design advocacy	Design purpose	Concept formation
	Design content	
	Information integrity	

Colour scheme	Ambient conditions
Atmosphere (lighting, audio, scent, touch and more)	
Products' mapping	Layout design
Product complexity	
Graphic layout	
Space layout	
Path flow	
Presentation approach	Visual complexity level
Presentation manner	Interactivity level
Physical facility employment	
Digital tool employment	

### **3.7 Conceptual Model of Digital Visual Merchandising Design**

#### **3.7.1 Establishment of the Conceptual Model**

Based on the study of the principles of information management and the theories about environmental psychology, motivational states, emotional arousal and aesthetics experience, a mechanism reflecting the operational model of identified design factors (i.e., concept formation, layout design, ambient condition, interactivity level and visual complexity level) in digital visual merchandising design has been figured out and demonstrated in Figure 3-1.

According to the mechanism, a designer proposes the digital visual merchandising to deliver the messages about the promoted innovative textiles and fashion to the target audiences. The design process to form a digital visual merchandising design can be regarded as a process setting stimuli to arouse audiences' responses. The messages can be presented with the stimuli (i.e., digital signals) by the selected digital tools. The stimuli can be divided into the

internal stimuli and the external stimuli. The internal stimuli are implicit meanings associated with cognition to the presented innovative textiles and fashion such as the digital visual merchandising design concept, features of the promoted innovative textiles and fashion. While, the external stimuli are explicit visual presentation, which can be achieved through layout design, ambient condition, the control of interactivity level and visual complexity level. Once the audiences viewed the digital visual merchandising, they will interpret the messages based on their understandings.

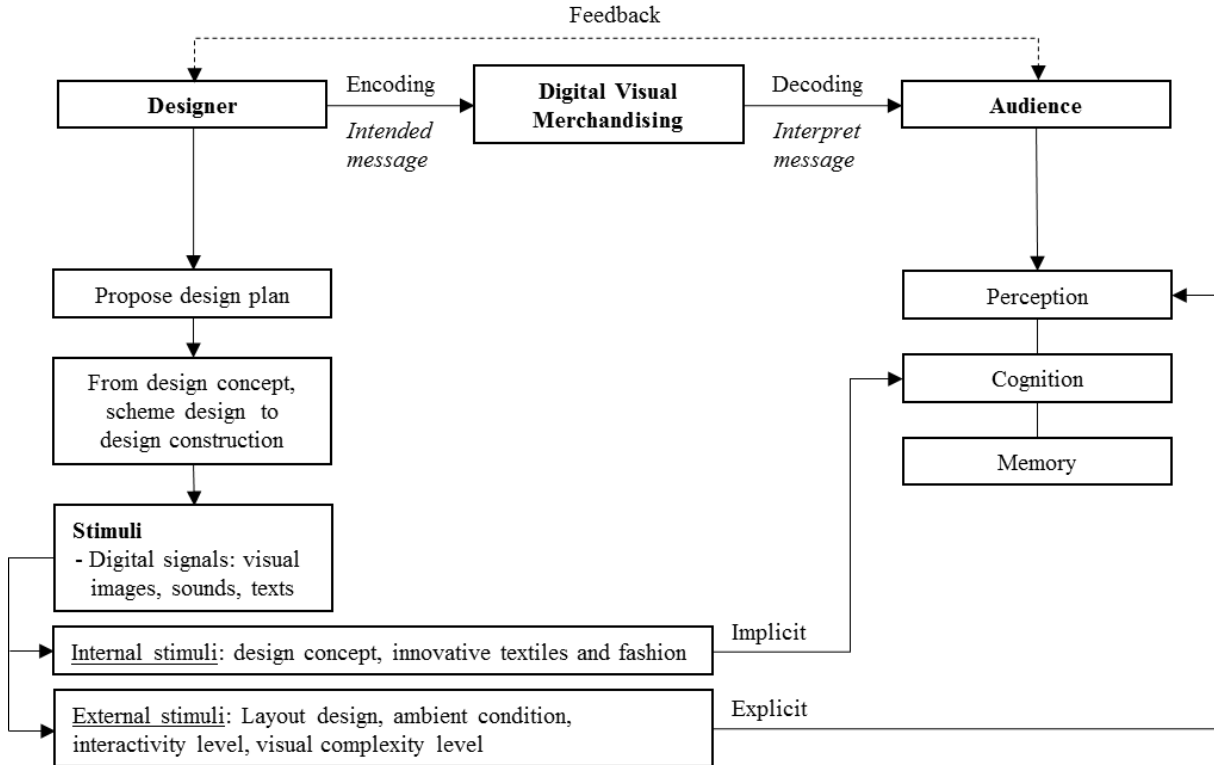


Figure 3-1: Mechanism of Digital Visual Merchandising Design

With the mechanism, the key point of digital visual merchandising design is the effective stimuli setting that may improve the design performance and make the audiences well understand the delivering information was confirmed. A conceptual model integrating the identified five design factors was proposed, which demonstrating the roles of design factors in digital visual merchandising and the design contexts underlying each design factor (Figure 3-2). The model might be able to guide the application of offline and online digital visual merchandising designs.

The established conceptual model contained the five identified design factors, including concept formation, layout design, ambient condition, interactivity level, and visual complexity level. The model focused on exploring the relationships/effects between/of the design factors in digital visual merchandising design and the design contexts under each factor. The digital visual merchandising design might be designed based on the identified design factors. The variables to control the design factors in the digital visual merchandising design and the design contexts of each design factor were planned to be explored and interpreted based on the digital visual merchandising implementations in offline and online formats. The impacts of the identified design factors in digital visual merchandising design process would be verified through the implementations.

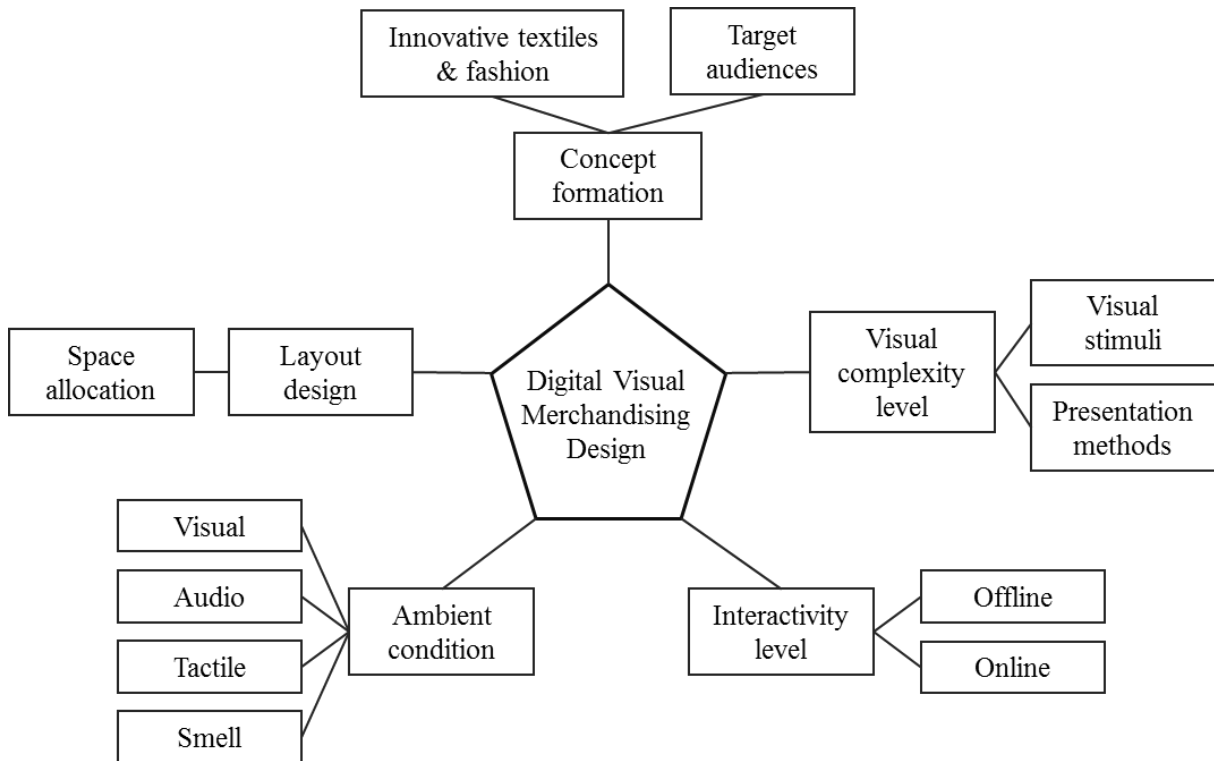


Figure 3-2: Conceptual Model of Digital Visual Merchandising Design

As shown in the model, each design factor included some specific design contexts. The concept of the digital visual merchandising could be formed based on the innovative textiles and fashion planned to be promoted and the demands from the target audiences. The layout design might be related to the space allocation. The ambient condition could be created through the senses that could be felt by the human body, including the perspectives of visual, audio, tactile and smell. The level of interactivity might be different based on the different offline and online interactions. The visual complexity level might also be varied by the setting of visual stimuli and the employment of the presentation methods.

### **3.7.2 Hypotheses Based on the Conceptual Model**

With the proposed conceptual model, some hypotheses were assumed and needed to be further verified through the design implementations. There might some relationships within the identified five design factors, which were assumed the factors to be linked or partly linked to the digital visual merchandising design process. The details of the hypotheses were related to the design contexts of each design factor, affecting relationship between design factors, the relationships of the design factors to different digital visual merchandising design phases, and their effects on digital visual merchandising design performance. The hypotheses were assumed and stated as follows:

**H1:** There may contain some other design contexts in each design factor.

**H2:** There may be a relationship between the identified design factors.

**H3:** The identified design factors may link to the different digital visual merchandising design phases.

**H4:** The control of the design factors in digital visual merchandising may be positive to the design performance.

**H5:** Good design performance may be positive to enhance the overall cognition to the promoted innovative textiles and fashion.

### **3.8 Summary**

In order to formulate the grounded model for digital visual merchandising design, a qualitative research methodology employing the development of the grounded theory was conducted using a combination of data collection through on-site observations and document

reviews. Massive papers related to offline and online visual merchandising design were reviewed, and around fifty papers were selected for the data coding. Moreover, case studies were conducted for the research and coded as well. Three promotional events held by fashion brands were on-site observed as offline case studies. Three designer brand websites and two online shopping platforms were reviewed as online case studies. The design factors were identified by coding the collected data. A conceptual model of the digital visual merchandising was formed to guide the implementations in offline and online digital visual merchandising design in the following study period that intended to verify the feasibility of the conceptual model, interpret the design contexts in each design factor, and reveal the relationships between the design factors and their impacts on digital visual merchandising design performance. The implementation outcomes were used as the basis for improving the grounded model.



## **CHAPTER 4      IMPLEMENTATIONS AND INTERPRETATION**

### **4.1 Introduction**

With the proposed conceptual digital visual merchandising design model, implementations in offline and online exhibitions conducted in the study period were selected and discussed in the following sections. The implementations were presented with the contents of a) design process; b) discussion of design factors; c) design results and d) summary. Through the analysis of the implementations, the design process and the methods of digital visual merchandising in presenting various innovative textiles and fashion, in terms of the differences in the complexity of the presented textiles and fashion, presentation approaches and digital scales, were revealed. Based on the discussion and analysis results, a horizontal comparison was conducted to interpret the identified design factors, namely, “concept formation”, “layout design”, “ambient condition”, “interactivity level” and “visual complexity level”. The design contexts of each design factor involved in the digital visual merchandising design process were elaborated.

### **4.2 Implementation Analysis**

The implementations designed with the identified design factors have been described and analysed. Due to most innovative textiles and fashion are at the development stage and does not launch in the market, the presentation format is limited. Some experimental designs in forms of exhibition, fashion show and competition were carried out in the early stage to test

the feasibility of employing as the digital visual merchandising for innovative textiles and fashion.

With the experimental results, the exhibition that was assisting with various physical and digital promotional methods was employed for digital visual merchandising to promote innovative textiles and fashion. The advantages of the exhibition included a) presenting the features of innovative textiles and fashion in a variety of approaches from a more cultural and professional perspective instead of displaying in a commercial environment; b) with the different exhibition themes and forms, the audiences may be easier to target; and c) compared to other limited activities such as pop-up stores, the exhibition is more flexible in the duration time and the record of the event.

Total of three representative implementations was selected as the design cases and reported in this section. Two implementations in offline exhibitions and one implementation in the online exhibition were presented in terms of the design process, discussion of design factors and design results. The implementations were selected based on a) differences in the complexity of the presented textile and fashion; b) differences in the presentation approaches; and c) differences in the digital scales.

#### **4.2.1 Offline Exhibition 1 – Self-Organisation: Junichi Arai’s Textile Anthology**

Exhibition 1 summarised a practical design implementation, namely, “Self-Organisation: Junichi Arai’s Textile Anthology”, which was a retrospective exhibition for the textile master Junichi Arai. As the introduction described in exhibition leaflet, the exhibition displayed the works designed by Mr Junichi Arai in different forms, including textiles, clothing and installations. The exhibition tried to highlight various textile techniques developed by Junichi Arai, his design concept and contributions to the textile industry and Japanese culture.

*Junichi Arai’s textiles combine traditional crafts, modern techniques and oriental aesthetics. The exhibition displays his works in different forms – textiles pieces, clothing and installations, showing the artist’s unique artistic concept and design ideal. While it traces Junichi Arai’s footsteps spanning two centuries, his concepts and techniques are explained in detail. The exhibition also serves as an exploration of future horizons for textile and fashion design, pointing to a new path. (Quoted from exhibition leaflet)*

In this section, this practical exhibition design was conducted as an offline digital visual merchandising implementation. It was discussed from the perspectives of the exhibition design process, applications of the detected design factors and design results. Exhibition information was listed in Table 4-1, and the backdrop designed for the exhibition was presented in Figure 4-1.

Table 4-1: Information about Offline Exhibition 1

Items	Information
Title	Self-Organisation: Junichi Arai's Textile Anthology
Period	16 December 2017 to 28 February 2018
Venues	Venue 1: Innovation Gallery, Jockey Club Innovation Tower, The Hong Kong Polytechnic University  Venue 2: The Fashion Gallery, The Hong Kong Polytechnic University
Format	Offline exhibition
URL	<a href="https://www.fashiongallery.hk/junichi-arai">https://www.fashiongallery.hk/junichi-arai</a>



Figure 4-1: Backdrop Designed for Offline Exhibition 1

#### **4.2.1.1 Design Process**

The exhibition was designed with six steps including the design concept formation (i.e., investigation of textiles' properties, investigation of the target audiences, site inspection and space allocation), scheme design, design construction and exhibition review and opening (Figure 4-2). Textiles designed by Junichi Arai were selected and classified according to their production techniques, colour, materials and size. The audiences were targeted to the textile experts, fashion designers, fashion and educators and students. With the investigation of the textiles, it found that most textile pieces developed by Junichi Arai were in large size. In order to better present the works, two venues were selected to perform the works. Thus, the works were allocated to the different gallery rooms based on the preliminary classification in the first step. After many discussions, the exhibition concept was confirmed to highlight the textile techniques employed and developed by Junichi Arai. Various display forms were proposed to present the works, such as flat display, hanging, dressing on mannequin and installation. Interactive activities, such as collaboration design, workshop and seminar, were designed to elaborate the works in-depth. More documentation, such as book, poster, leaflet, video, were edited and designed to facilitate the understanding of the works and the applied textile techniques.

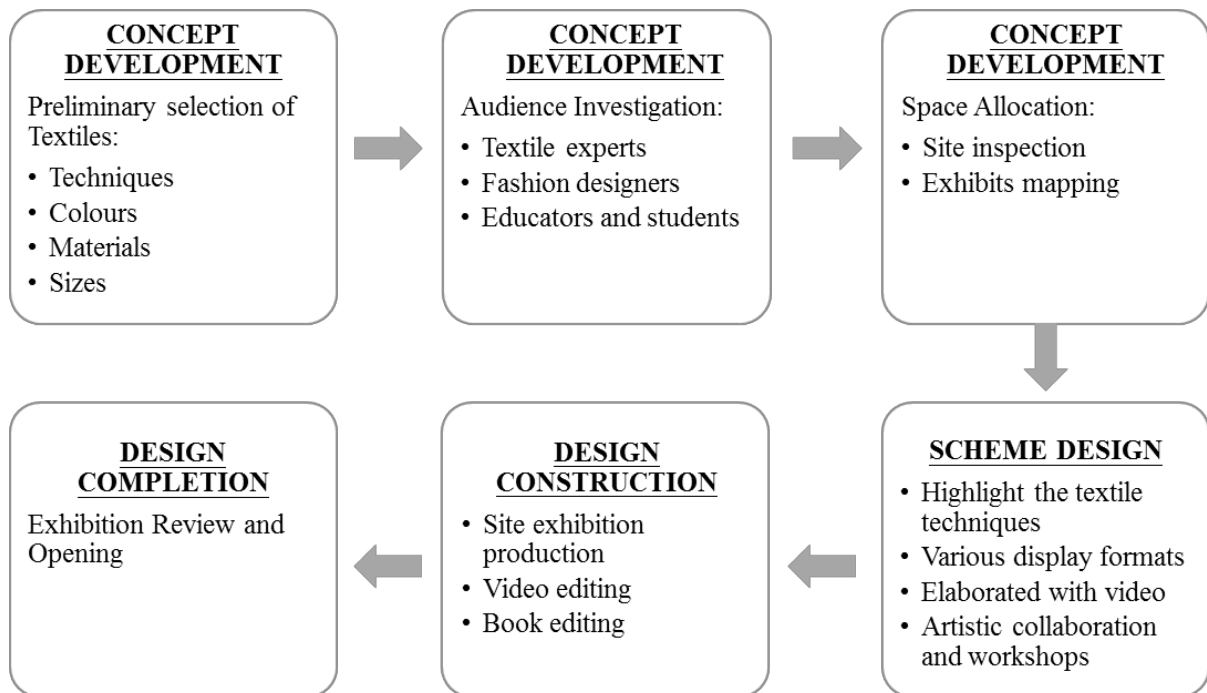


Figure 4-2: Design Process of Offline Exhibition 1

#### 4.2.1.2 Discussion of the Design Factors

##### 1) Concept Formation

The exhibition concept plan was formed from the perspectives of the research on textiles, investigation of the audiences, field investigation, proposal of presentation approaches and environmental stimuli proposal. A concept formation map was drawn to present the specific tasks under each perspective (Figure 4-3). The design details of the presentation approaches and environmental stimuli effects should be proceeded with a tentative plan at the concept formation stage.

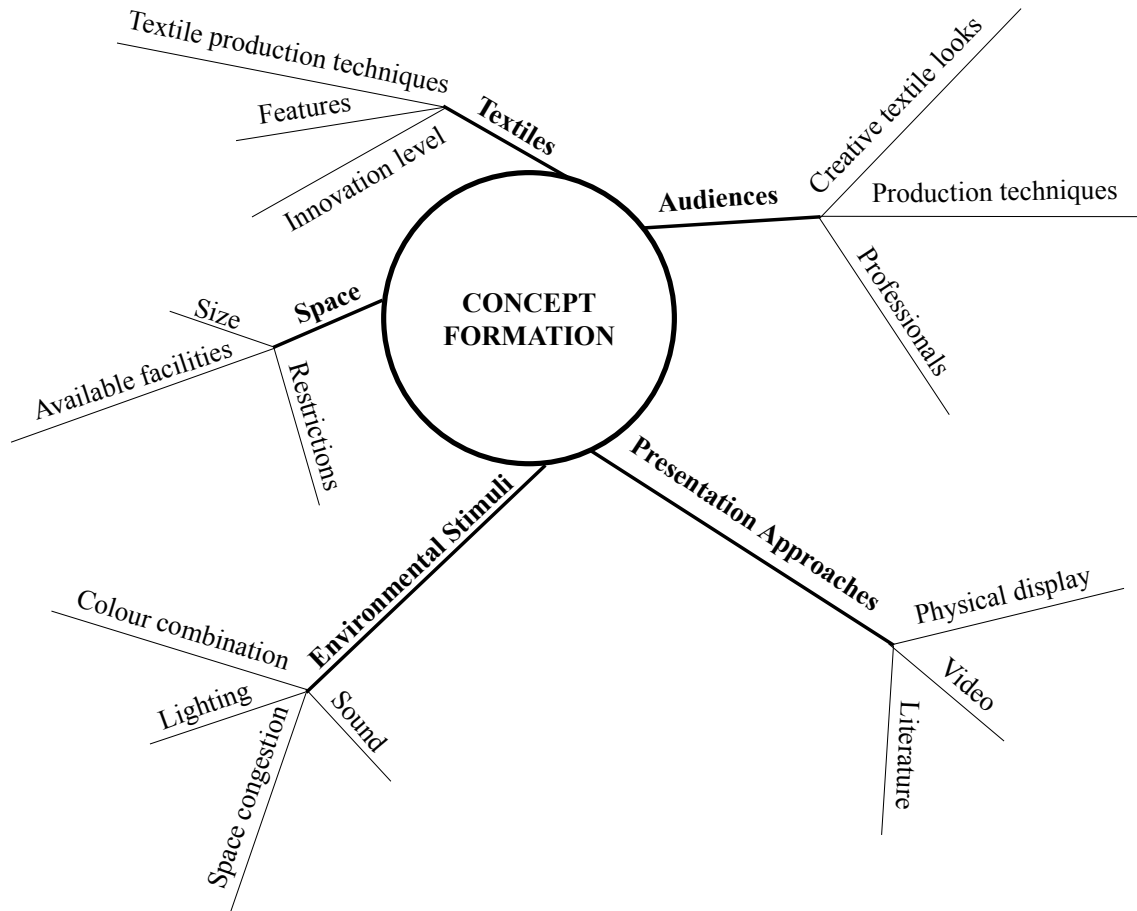


Figure 4-3: Offline Exhibition 1's Concept Formation Map

### **Investigation of the textiles**

In the early stage of the design, the textile investigation was conducted on the textiles in the amount of 116 pieces. It was found that the innovation of the Junichi Arai's textiles was the employment of the newest technology. His textiles presented a new look, which was never seen before. The textiles are also suitable for interior decoration, and some belong to the category of fibre art. When reviewing the work prepared for the exhibition, it was found that the round shape was emerged in many works, such as the circular pattern, spider pattern. In

this context, the element of circular shape was continued to be used as the visual element in the installation displays (Figure 4-4).

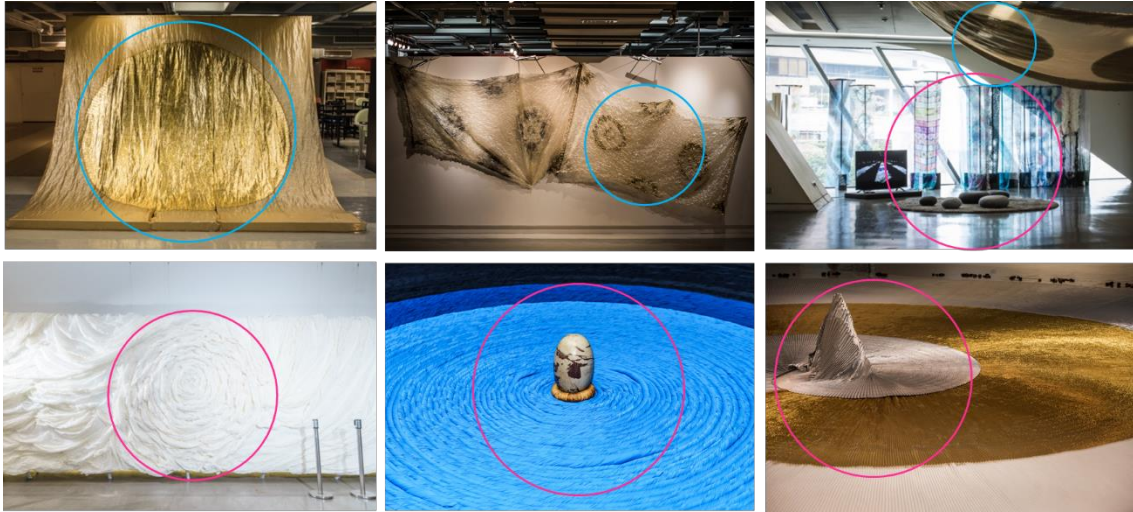


Figure 4-4: Detected Visual Elements and Applications in Offline Exhibition 1  
(Blue circled: visual elements; Pink circled: visual elements applied in exhibits)

Junichi Arai's textiles became the enlightenment at that time for the future trend of textile design, which originated from the unique inspiration and style conceived in his deep understanding of the traditional textile techniques, new technologies and oriental culture. Eight different textile techniques were identified from his textiles, including metallic textiles using the melt-off technique, digital jacquard, shrunken wool, transfer printing, pleats, spider pattern web lace, embroidery and swirling pattern. The displayed textiles were focused on the first five types, which were detailed introduced in the exhibition and the literature materials.



### **Investigation of the audiences**

The target audiences of the exhibition were the textile professionals and fashion designers, who had a high knowledge level in textiles that could understand the principles of the techniques applied by Junichi Arai. It was assumed the exhibition being with educational and social significance. Therefore, educators, students and the public were included as the target audiences, which hoped they could study the designer's philosophy and inspired from the exhibition.

### **Plan of space allocation, environmental stimuli and presentation approaches**

The exhibition aimed to present Junichi Arai's vision on the textiles that created from crossing boundaries between craft and technology. In the exhibition, large-scale works occupied the whole space, the spectacular colours and the dynamic structures of which inspired bold imaginations of audiences. Hanging and some installation displays were proposed to be the main displaying methods to present the textile pieces. Some textiles planned to be wrapped on the mannequins according to the textile shapes. Details about the space allocation and the reasons to employ the selected presentation approaches were elaborated in the following "Layout design" section. Discussion about the effects of environmental stimuli was presented in the "Ambient condition" section.

## **2) Layout Design**

There were around forty pieces displayed in the exhibition. Considering the different techniques applied in the textile production process and their exhibition effects, two venues were employed. Venue 1 locates at the Innovation Tower that contains six gallery room in

different sizes. The shapes of the galleries are irregular so that the space is difficult to fully used. Innovation gallery has been used for some graphic design exhibitions, product design exhibitions and some cultural events before. Venue 2, The Fashion Gallery has been used for presenting fashion and textile exhibition for many years. The space shape of The Fashion Gallery is a rectangle and equipped with the facilities of mannequins and projectors. The allocation of the exhibits was listed in the table below (Table 4-2).

Table 4-2: Exhibits Allocation in Offline Exhibition 1

<b>Gallery rooms</b>	<b>Display items</b>
Foyer gallery	Exhibition backdrop, installation wall, long-piece textiles
Gallery A	Heavy textiles, long woollen textiles
Semi-outdoor Gallery	Outdoor textile installation, clothes-wearing on mannequins, boards of technique introduction
Gallery B	Long-piece textiles produced in melt-off technique
Gallery C	Video played by HD screen, boards of designer's biography, textile pieces made by students in the workshop
Gallery D	Digital jacquard works
The Fashion Gallery	One large textile piece, 12 small/medium textile pieces, textile installation, a group of tiny pieces tested by students in the workshop

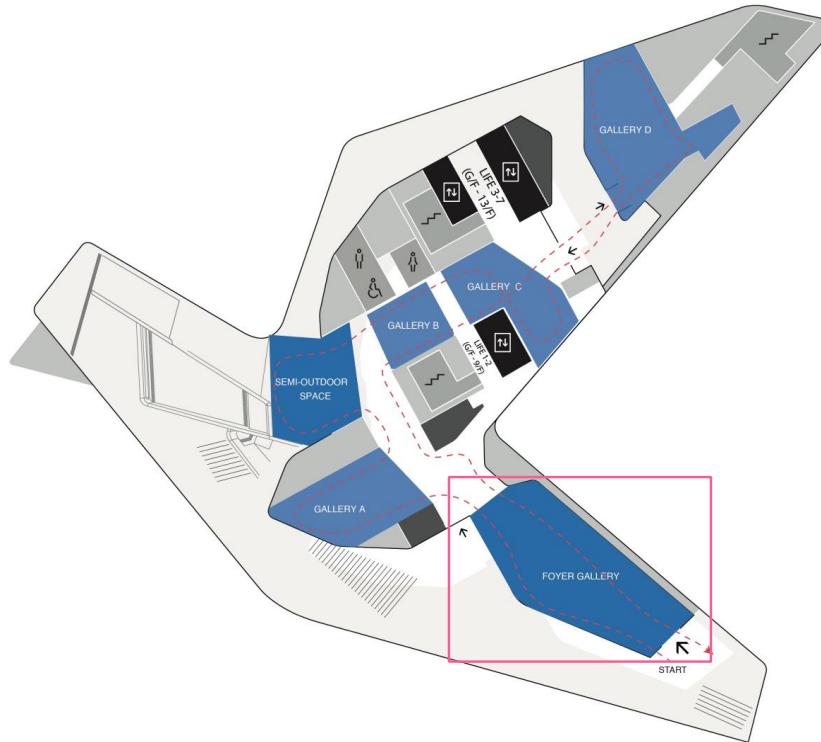
The exhibits were classified mainly based on textile techniques. On that basis, they were subdivided according to the different materials, colours and sizes. The space specifications, including space size, available facilities and the restrictions regarding the intervention of the space, were acquired from the field investigation. The textiles were mapped in the area with

the following principles a) the volubility and completeness of the exhibition narrative; b) the classifications of the textiles; and c) the appropriateness and possibility to place in the space. The exhibition path flows at two venues were planned in loop format (Figure 4-5). The exhibition narrative could be stated smoothly by applying the loop format, and the audiences would be guided to visit the exhibition along with the set path flow. Moreover, the wall space could be maximum utilised in this format.

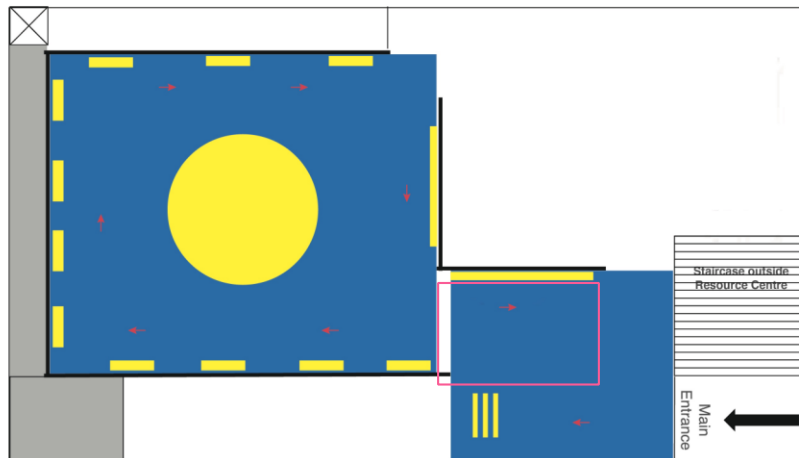
Innovation tower was the main venue for the exhibition. The exhibition started from the Foyer Gallery that placed with a large size installation and some long pieces produced in different textile techniques. It was the transition space for the exhibition. When audiences entered in the exhibition and passed by the transition zone, large size textiles might attract their attention quickly and let them have a powerful impression and immersed in the exhibition. The long pieces also connected the gallery spaces and led the audiences to continue the visiting. Heavyweight woollen pieces were displayed at Gallery A, which followed after Foyer Gallery. Some lower tables were custom-made, which aimed to create an effect like the presenting textiles were floating in the air. With the impression accumulated from the works displayed in Foyer Gallery and Gallery A, the introduction about the textile techniques was presented on boards and placed at an area near Gallery A. The area displaying the boards was spacious that audiences could stay for a while to read the introduction before they stepped into the next gallery room.

Another installation and the clothes wearing on the mannequins were set at Semi-outdoor Gallery. The works displayed at Semi-outdoor Gallery gave a transit to the audiences before they were visiting a new group of works made by another textile technique at Gallery B. A comfortable space was set with carpet and sofa for audiences to have a rest at Gallery C. The designer's biography and a video were placed in this area with boards and TV, respectively. Audiences could read the biography and watch the video in a comfortable environment. The works designed by Junichi Arai displayed in the Innovation Tower was ended at Gallery C. A digital jacquard work designed by collaborative designers was placed at a separated space, Gallery D, which could have a functional distinction with Arai's works. The poster about the digital jacquard project was displayed at Gallery C to lead the audiences to continue the visiting.

Small and medium pieces displayed at The Fashion Gallery were presented in loop format as well. The visiting path flow was evident due to the regular space shape. A representative large-size textile piece with a distinct Japanese style produced by Junichi was placed at the designed transition zone (Figure 4-5, b). Eleven pieces around one-metre height and width were fixed on the wall. In the centre of the space was an installation designed with Junichi Arai's textiles and presented in a style of the Japanese rock garden. The tiny pieces made by students in the workshop were hanged at the exit space to express the tribute to the designer.



(a)



(b)

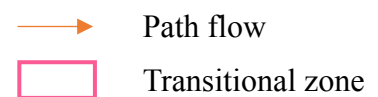






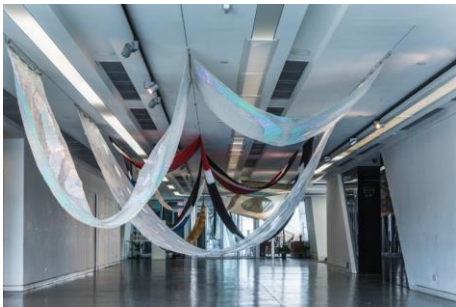

Figure 4-5: Layouts Design for Offline Exhibition 1

(a) Venue 1, (b) Venue 2

3) Ambient Condition

Ambient condition of the exhibition was consisted of and accomplished by three perspectives, including visual stimuli (colour coordination and lighting), spatial stimuli, and auditory stimuli (sound at the site). The image of the exhibition effects and the discussion of the ambient condition were presented in Table 4-3.

Table 4-3: Discussion of the Ambient Condition in Offline Exhibition 1

VISUAL STIMULI	
Lighting	
Images	<div></div>

- 
- Discussions
- The lighting sources consisted of the spotlight, decorative light, interior lights inside the building, and natural daylight.
  - The spotlights in warm tone were used to highlight the exhibits, enhance the effects and draw attention to the textile's details such as the metallic colour, textile textures.
  - Decorative lights were embedded in the lower tables and displayed the textiles at Gallery A. As mentioned previously, the pursuing effect was to look like the textiles were floating in the air. The brightness of the light at Gallery A was set to be darker than other spaces, and the decorative lights helped create the ideal effect.
  - Besides the display function, the exhibition sites (Venue 1) shared the services of the building's hall and corridor. According to the building's requirements, the functional lights cannot be turned off for the safety concerns and practical needs, which became one of the light sources.
  - Some installations were displayed outside, and the natural daylight was also a light source. The visual perception and the colour of the work looked different in different weather.
- 

### **Colour coordination**

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#### **Images**



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## Discussions



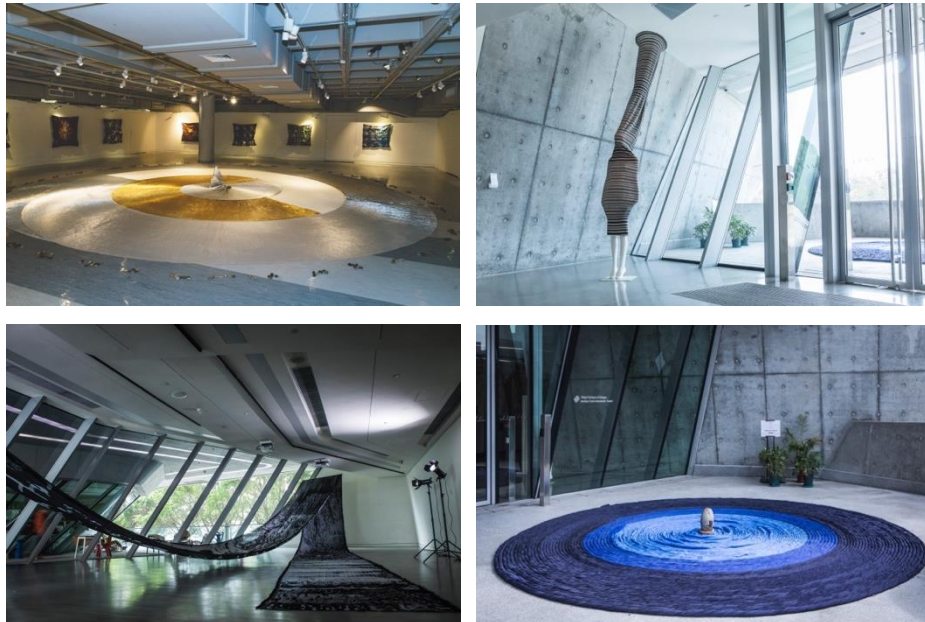
- The primary colours and the representative colours of the works were picked and listed in the colour pieces above.
- Most textiles were in golden and silver metallic colours, and some were dyed in red, blue, green and black.
- The colour scheme was developed based on the picked colours, the exhibition was to display the textiles based on the colour and gave an order of light colours to dark colours and interspersed with some other colours for variation.

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## SPATIAL STIMULI

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### Images



- 
- |             |  |
|-------------|--|
| Discussions | <ul style="list-style-type: none"><li>- Most displayed textiles were large pieces, and they were planned to present in low density but could occupy the whole exhibition space.</li><li>- The displaying principle in most galleries was presenting one focal object in the space centre and displaying some small or medium pieces around the focal object.</li></ul> |
|-------------|--|
-



- 
- There was some blank space left to the audiences to obsess in the exhibition. Audiences would be willing to spend more time to stay at the exhibition and think, understand and inspire from the works.
- 

## AUDITORY STIMULI

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### Sound

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### Image

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- 
- Discussions
- There was no background music played on site. One of the edited videos was loop played at Gallery C. Audiences could sit on the carpet to watch the video or read the designer's biography nearby.
  - Another video was played at Gallery D with a sound of the running digital jacquard machine, which might bring the audiences to the scenario that the jacquard work was under production and to help them perceive the exhibit production progress.
  - The display areas were shared by the public, so that some noises were inevitable, such as the talking voices, footsteps, elevator running. These sounds would not interfere with people visiting the exhibition but gave them a sense of reality.
- 

### 4) Interactivity Level

The interactivity of the exhibition was about the interactive relationships created from the exhibition display, a) the interactivity between the exhibition and audiences; b) the expansion to the textile design through the presented textiles; and c) the promotion of the designer's

textiles and his contributions to the textile and fashion industry. These three perspectives were further explained as follows:

- The interactive relationships between the exhibition and the audiences

The interactivity between the exhibition and the audiences was the basic and the most direct relationship. Exhibition audiences had cognitions and emotional responses after viewing the exhibition. Positive reactions to the exhibits might encourage them to explore the textiles further, such as curiosity about how to create the textiles with the manifested appearances, why the textiles were designed in this way. The similar responses were reflected on the behaviours like being willing to read the technique introduction, designer's biography and would like to communicate with the experts who have the relevant knowledge. Besides, the displayed exhibits on-site with various presentation approaches, audiences could take the leaflet away for continuous learning. A book was also edited and published to meet the request for further study. Moreover, a seminar was organised to let audiences who had an interest in the exhibited works and would like to communicate with the experts directly and deeply. Thus, some souvenirs were prepared as the promotion to the exhibition, such as a fabric tote bag and sticker. The exhibition information was uploaded to the organiser's website so that the audiences could track the relevant exhibition information continuously.

- Expansion of the textile design through the presented textiles

It was hoped that more professionals could know the textile techniques developed by Junichi Arai, then adopt the techniques to create textile and fashion designs. A workshop

and a digital jacquard project were conducted to involve more professionals participate in the heritage and development of textile techniques. The workshop was integrated into a textile design subject that students studied and experimented Junichi Ari's representative melt-off technique, then applied into their textile design works. Students' textile designs were displayed in the exhibition as well, which had been regarded as the continuation of Junichi Arai's design spirits. For a similar purpose, another representative technique of digital jacquard was employed and applied in a digital jacquard work. The work was collaborated designed by the local artists, academic staff in The Hong Kong Polytechnic University and St James' Settlement (an NGO provides social welfare services in Hong Kong). The digital jacquard work was produced in the workshop in The Hong Kong Polytechnic University. The designed digital jacquard work was displayed at Gallery D, which meant the connection between Mr Arai and the local community in terms of the re-development and re-creation to his textile technique and design vision.

- Promotion to the designer's textiles and contribution to the industry  
Through the exhibition, designer's textiles were presented and promoted to the public, which was a kind of interactivity between the textiles works and the free society. Through the exhibition, the general public could get close to the textiles and professionals in the industry could recognise the fascination and the value of the displayed innovative textiles and their applications as well. It was hoped the audiences could realise the possibility of applying the presented technologies into the new textile creation, which could be the development of the textile industry.

## 5) Visual Complexity Level

The visual complexity of the exhibition was reflected in the perspectives of a) design contents; b) presentation approaches; and c) interactive forms. The visual complexity was tried to balance and control at a middle level to make exhibition theme clear and visiting path flow unobstructed. The audiences' attention would not be distracted by some unnecessary decorations. The details about the mentioned three perspectives were elaborated as follows:

- Design contents

The exhibition design contents were organised based on the design elements extracted from the presented textiles in terms of textile techniques, materials, colours. Junichi Arai was deeply influenced by Japanese culture and formed his unique oriental design philosophy. Many Japanese cultural elements could be found in his works. Juichi Arai was born in the family for textile manufacturing, and he had already well known about the textile production procedures at his young age. He successfully combined new technology into textile production and created the textiles with totally new looks. These explained why his works were innovative but integrated with the visual elements from Japanese traditional cultures.

The exhibition was planned to narrate with a theme of the textile techniques employed and developed by Junichi Arai. The presented textiles in the exhibition were classified based on the textile techniques and the additional materials including the edited book (Figure 4-6), leaflet (Figure 4-7), videos (Figure 4-8, 4-9, 4-10) and exhibition

backdrops were all stated with the contents of textile techniques. The details about the exhibits mapping and the allocation can be referred to the section of “Layout design”.

- Presentation approaches

If there were too many presentation approaches, the audiences’ attention might be distracted when viewing the exhibition. The exhibition contained various textiles categories so that the approaches to present the exhibition should be controlled. In the exhibition, the presentation approaches focused on the methods of hanging, flat displaying and installation. Other additional materials to assist the presentation were carefully designed to keep the consistency to the exhibition key visual, which were in terms of the graphic design style and displaying materials. The graphic designs of the book cover, posters, invitation card, were shared the image used in the exhibition backdrop. Except one poster posted outside the door that had to meet the displaying requirements, other backdrops and exhibition boards were printed on the fabrics through the technology of digital printing in order to keep the consistency of the design within the exhibition.

- Interactive forms

In order to balance the level of interactivity and visual complexity, the interactive forms were presented by focusing on the interactivity between the exhibition, promotional impacts on the textiles and inspirations to the industry. The details have been stated in the sections of “Interactivity level” and “Visual complexity level”.

#### **4.2.1.3 Design Results**

The exhibition was presented based on the textile techniques employed and developed by Junichi Arai in order to show his inheritance of Japanese traditional cultures and the innovation in textile technology. Based on the analysis of design factors in digital visual merchandising, the final design results of this implementation have been presented with the following methods.

##### **1) Physical Exhibition**

Physical exhibition was the main form adopted to present the exhibition narrative. The textile pieces were classified mainly based on their different production techniques. The grouped textiles were displayed in seven gallery rooms with various presenting forms as follows:

- Table display: Heavy woollen textile pieces were tiled over the table or shaped by hanging.
- Hanging from the ceiling: Long textile pieces produced with melt-off techniques were hanged from the ceiling.
- Fixing on the wall: Medium size textile pieces employed with different technique were grouped by colour then fixing on the wall.
- Wearing by mannequin: Clothes and some textile pieces were redesigned and dressed on the mannequins.
- Installation: Some textiles designed for installation display were represented in the exhibition.

## 2) Publications

Publications in formats of book and leaflet were edited and printed for providing a comprehensive study.

- Book: The book recorded the exhibition and could be an independent documentary to study the textile techniques developed by Junichi Arai (Figure 4-6). The book edited in contents of the four forewords, one designer's statement, five review articles from the experts in the textile industry and one article recording the details of the mentioned eight textile techniques employed and developed by Junichi Arai and designer's biography. The book was distributed to the textile professionals who visited the exhibition.

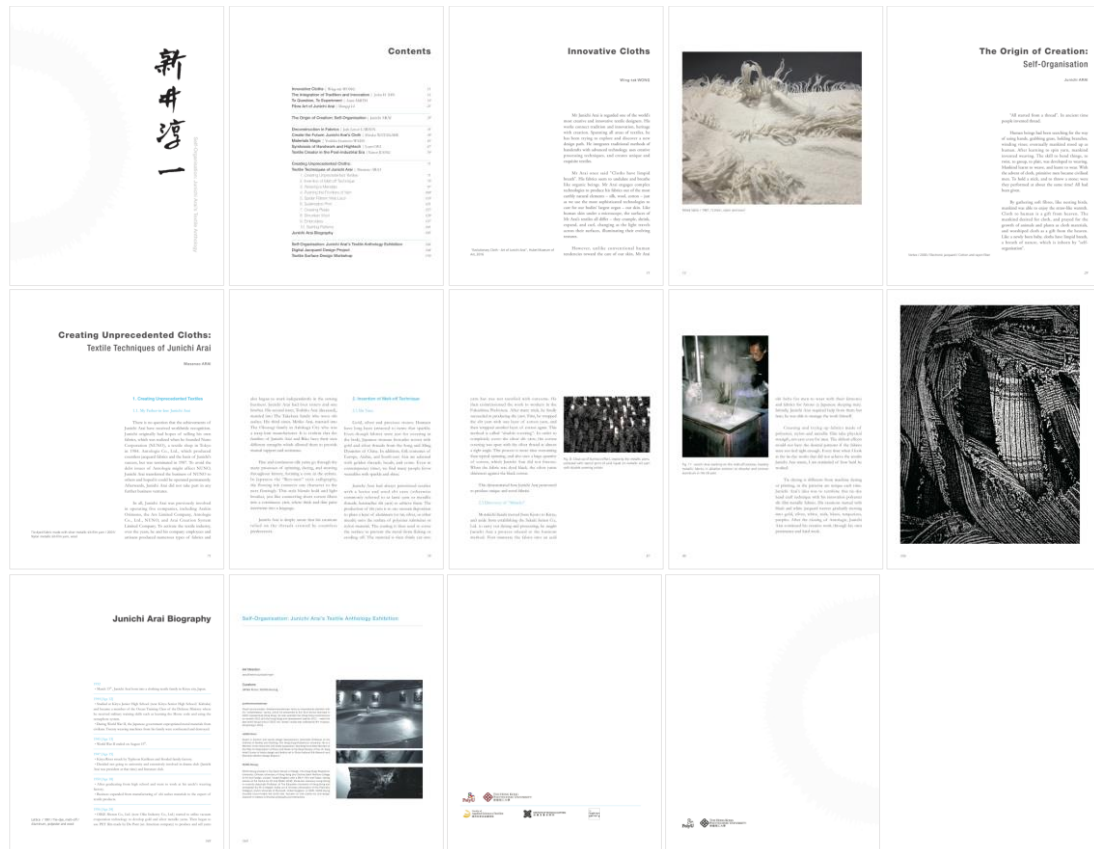


Figure 4-6: Book “Self-Organisation” Designed for Offline Exhibition 1

- Leaflet: An exhibition leaflet was designed for distributing to the public who visited the exhibition (Figure 4-7). The leaflet contained necessary exhibition information, exhibition introduction, organisation information, simplified technique introduction and designer's introduction and achievements.

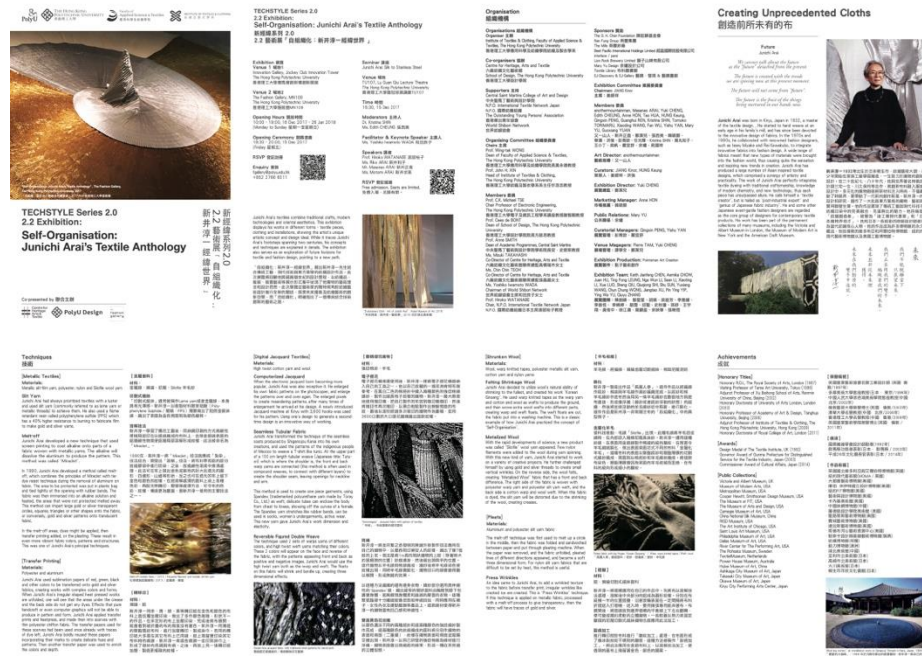


Figure 4-7: Leaflet Designed for Offline Exhibition 1

### 3) Printing Promotional Materials

A series of printing materials were edited and printed out for the exhibition promotion, including backdrops and posters in different sizes.

- Backdrops: Backdrops were designed with two groups. The first group was the exhibition backdrop with the exhibition information such as title, the organisations as usual. The second group was some boards designed to introduce the textile techniques and the designer's biography. The texts in the latter part were the same as the texts in the



leaflet. The backdrops were printed on paper by traditional printing, printed on fabrics by digital printing and projected on fabrics by a digital projector.

- Poster: Posters were used to present the information about the digital jacquard project, student's workshop and exhibition seminar respectively, which were designed with the introduction of each programme. The posters were posted on-site so that the audiences could read the introduction when visiting the exhibition to understand the objectives of each programme.

#### 4) Videos

Three videos with different topics were edited to help explain the designer's textiles from multi-dimensional.

- Video 1: The designer and his friends introduced the developed textiles techniques. More scenes were focused on the textile details (Figure 4-8). This video was loop played on a big screen located at the centre square on the campus during the exhibition period. It was easy to draw attention to watch the video when people were passing by.

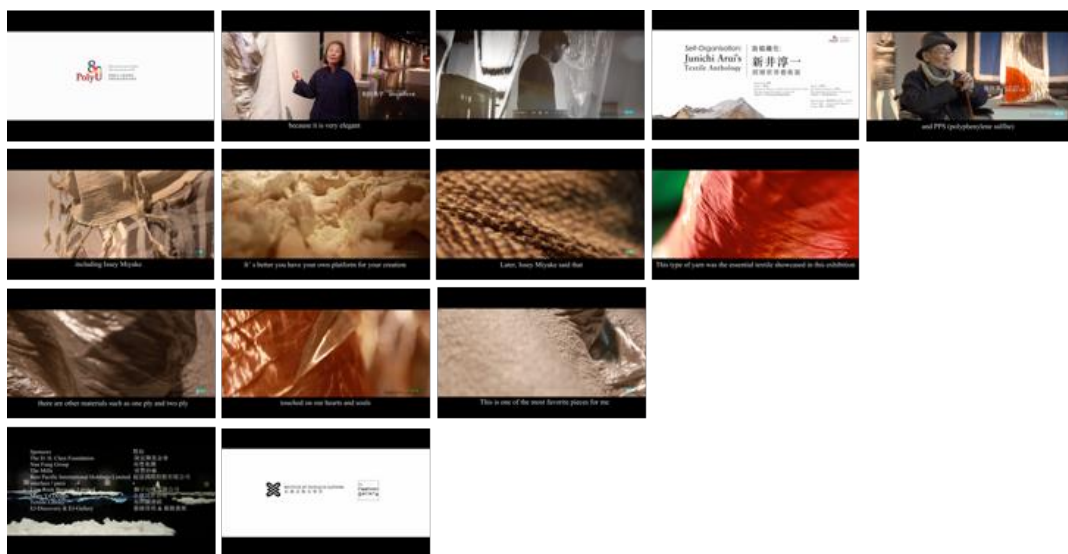


Figure 4-8: Video 1 Edited for Offline Exhibition 1

- Video 2: This video was edited based on a video recording the exhibition held in Tokyo in 2013 and combined with a video recording an event called “Cloth Sea” held for the subject exhibition (Figure 4-9).



Figure 4-9: Video 2 Edited for Offline Exhibition 1

- Video 3: This video recorded the production process of a digital jacquard textile work, which was designed by local artists, academics and NGO members as an outcome of a digital jacquard design project. The digital jacquard work was a development of Junichi Arai's textile technique and an extension of the exhibition (Figure 4-10).

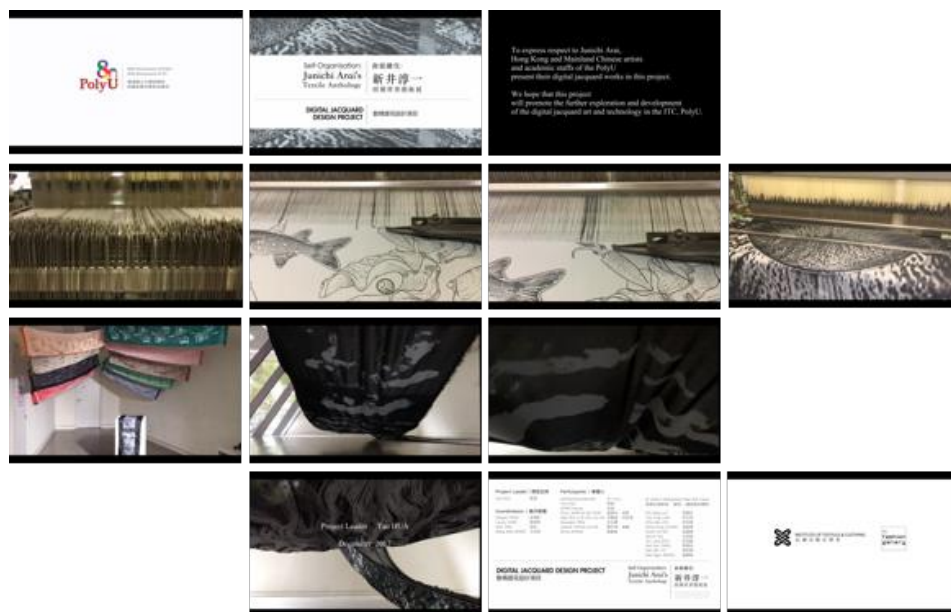


Figure 4-10: Video 3 Edited for Offline Exhibition 1

## **5) Collaborative Designs**

Digital jacquard was one of the representative techniques developed by Junichi Arai. As mentioned previously, a large size digital jacquard textile created by local artists, academics and some small pieces designed by NGO members were displayed in the exhibition. The exhibition curating team would like to echo Junichi Arai's design philosophy by using the digital jacquard technique for creation. It was hoped to promote the art of digital jacquard and the technology within the community.

## **6) Workshop and Seminar**

Interactive activities in forms of workshop and seminar were conducted for the exhibition. The workshop was organised by integrating into a textile course by studying and conducting experimental works with the melt-off textile technique developed by Junichi Arai. Over 20 pieces of textile designs from the workshop had been selected for display, as a tribute to Junichi Arai. Moreover, a special seminar with the family and lifelong friends of Junichi Arai was delivered to the public. The seminar shared the stories behind the scenes through videos, discussions and showing of textiles and wearables.

## **7) Online Information Publishing**

The exhibition information has been uploaded and officially published on The Fashion Gallery's website. Audiences can review the exhibition through online information. The website link has been listed in Table 4-1. The exhibition website page includes the contents of the necessary exhibition information (i.e., exhibition title, period, organisers, exhibition team), introduction, highlighted exhibition photos, video and related essays (Figure 4-11).

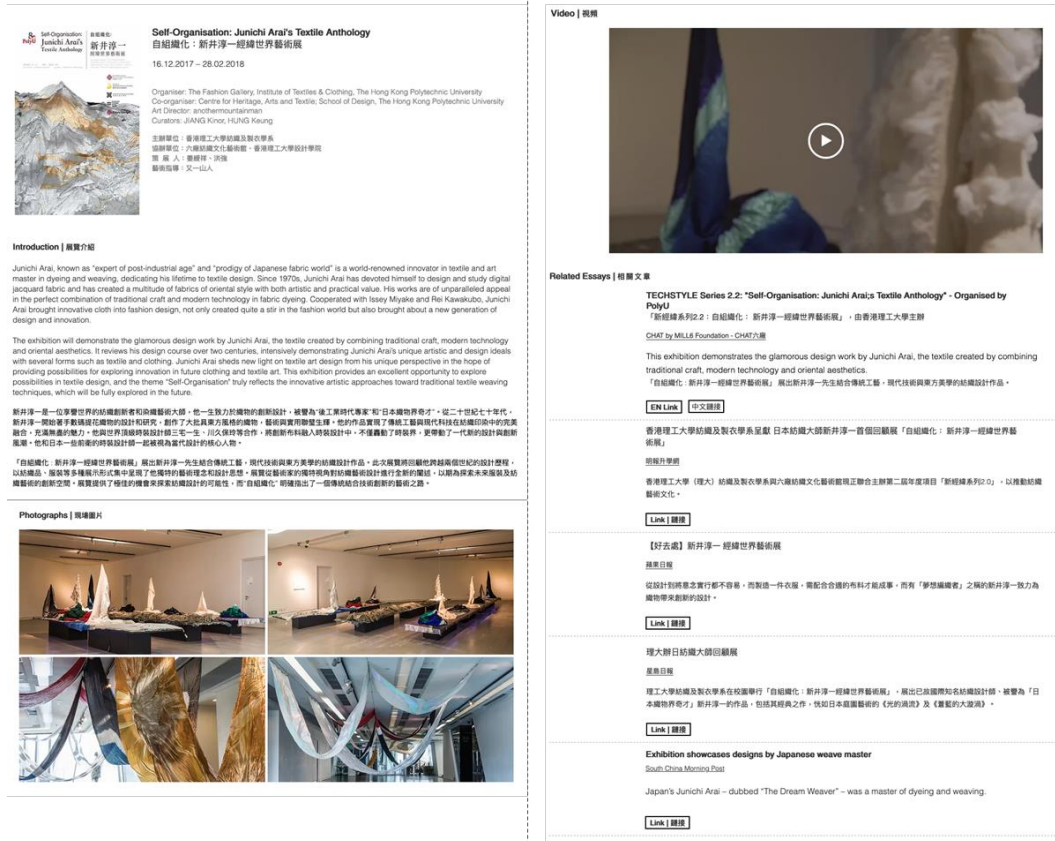


Figure 4-11: Online Information about Offline Exhibition 1

## 8) Public Promotions

Along with the tradition promotions in paper and magazine formats, more online media was employed to promote the exhibition to the public. Besides the exhibition marketing team, a public-relations company was recruited for seeking the promotional resources. The text information and the photos for promotional purposes were prepared to the public-relations company and sent to different platforms for publishing. The information of the online promotional materials and the promotions employed the traditional methods have been attached in Appendix 1 and 2.

#### **4.2.1.4 Summary of the Implementation**

This implementation presented the innovative textiles and fashion in large-scale in many presentation approaches. It provided a reference for displaying the textiles and fashion that are in high complexity level (employing various production techniques and materials) and large size. The presentation approaches, including physical display, publications, printed promotional materials, videos collaborative design, workshop and seminar, and online information were used to present the textiles and fashion, and to narrate the exhibition.

Digital and traditional promotion methods were employed to promote the exhibition to the public. The visual complexity level of the exhibition presentation was carefully controlled by keeping the consistency of all design presentations so that the audiences could follow up the planned path flow and focus attention on the exhibits. As this implementation was carried out in the early stage, the digitalised scale and the presentation approaches with the digital tools were limited. The interactivity more relied on the direct interaction between the actual works and offline activities.

#### **4.2.2 Offline Exhibition 2 – Kinor Jiang: Cloth / Landscape**

The second offline exhibition "Kinor Jiang: Cloth / Landscape" was organised in an installation format. A collection of installations reshaped by textiles and clothes were displayed in the exhibition. The objective of the exhibition was to promote the textiles and clothes produced by Kinor Jiang that employing a mentalising process in both chemical and physical textile coating technologies. As the words saying in the designer's statement, the exhibition was organised to rediscover the possibility of creating something new beyond the textile itself and explore the possibility of presenting the textile exhibits artistically.

*“Cloth / Landscape” is an experimental art exploration with metallic textiles designed over the past 20 years. Different from the exhibitions held previously, metal-plated fabrics and garments were reshaped and presented the installation elements, in order to convey a meaning underlying the clothing and to render the concept beyond the cloth. The shape of the cloth is uncertain, and the changes are unpredictable. It makes the creation process to be experimental, new information that was neglected during the production process was rediscovered again. In the rediscovery process, the essence of cloth was examined from a different angle. The exhibition aims to reflect the nature of artistic creation better, and people may enjoy the power of imagination. (Quoted from the designer’s statement)*

This practical exhibition design was experimented as another offline digital visual merchandising implementation. Similar to the first implementation case, it was discussed from the perspectives of the exhibition design process, applications of the detected design factors and design results. The necessary exhibition information was listed in Table 4-4, and the exhibition poster was presented in Figure 4-12.

Table 4-4: Information about Offline Exhibition 2

Items	Information
Title	Kinor Jiang: Cloth / Landscape
Period	14 April to 24 June 2019
Venue	The Fashion Gallery, The Hong Kong Polytechnic University
Format	Offline exhibition
URL	<a href="https://www.fashiongallery.hk/kinor-jiang-cloth-landscape">https://www.fashiongallery.hk/kinor-jiang-cloth-landscape</a>



Figure 4-12: Poster Designed for Offline Exhibition 2

#### 4.2.2.1 Design Process

The exhibition was designed with a six-step procedure. At the first step, the investigation and the classification of the textiles and clothes were conducted from the perspectives of textile and fashion's appearance, texture, size and material. The mouldability of the textile and fashion items to develop installations were measured during the classification process. The target audiences to the exhibition were investigated at the second step, who were set to be the textile experts, fashion designers, educators and students. The space of the exhibition site

was allocated at the third step, including the inspection to the site, figuring out the available facilities and restrictions of the space and mapping the installations at the site. The exhibition concept was developed to highlight the exhibition’s artistic and storytelling. Groups of installations with metallic textiles and clothes were designed to present the exhibition. Videos and promotional materials were edited to help elaborate the exhibition contents. All settled installations were finally reviewed before the opening of the exhibition (Figure 4-13).

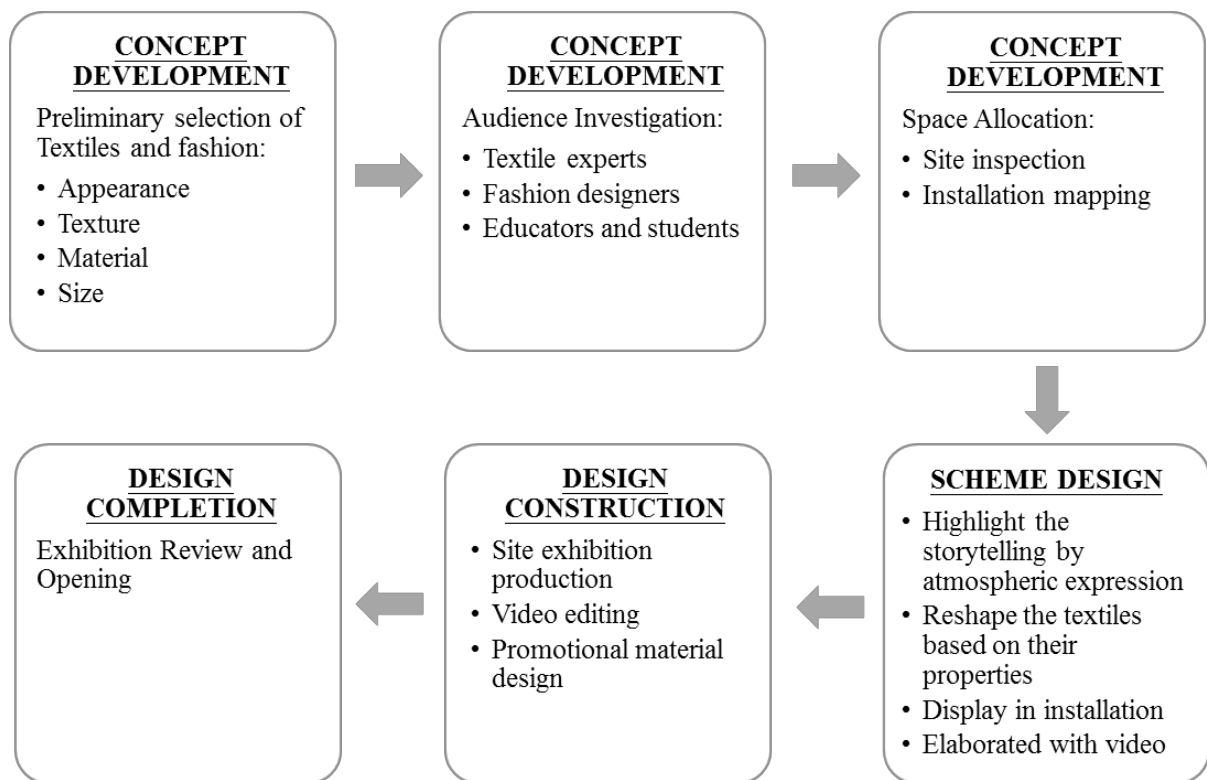


Figure 4-13: Design Process of Offline Exhibition 2



#### 4.2.2.2 Analysis of Design Factors

##### 1) Concept Formation

With the aim that to present this exhibition artistically, the exhibition concept was formed and discussed from five perspectives based on the experience accumulated in the previous implementation, including the investigation of the textiles and fashion that planned to exhibit and their possibilities to present as installations (Figure 4-14).

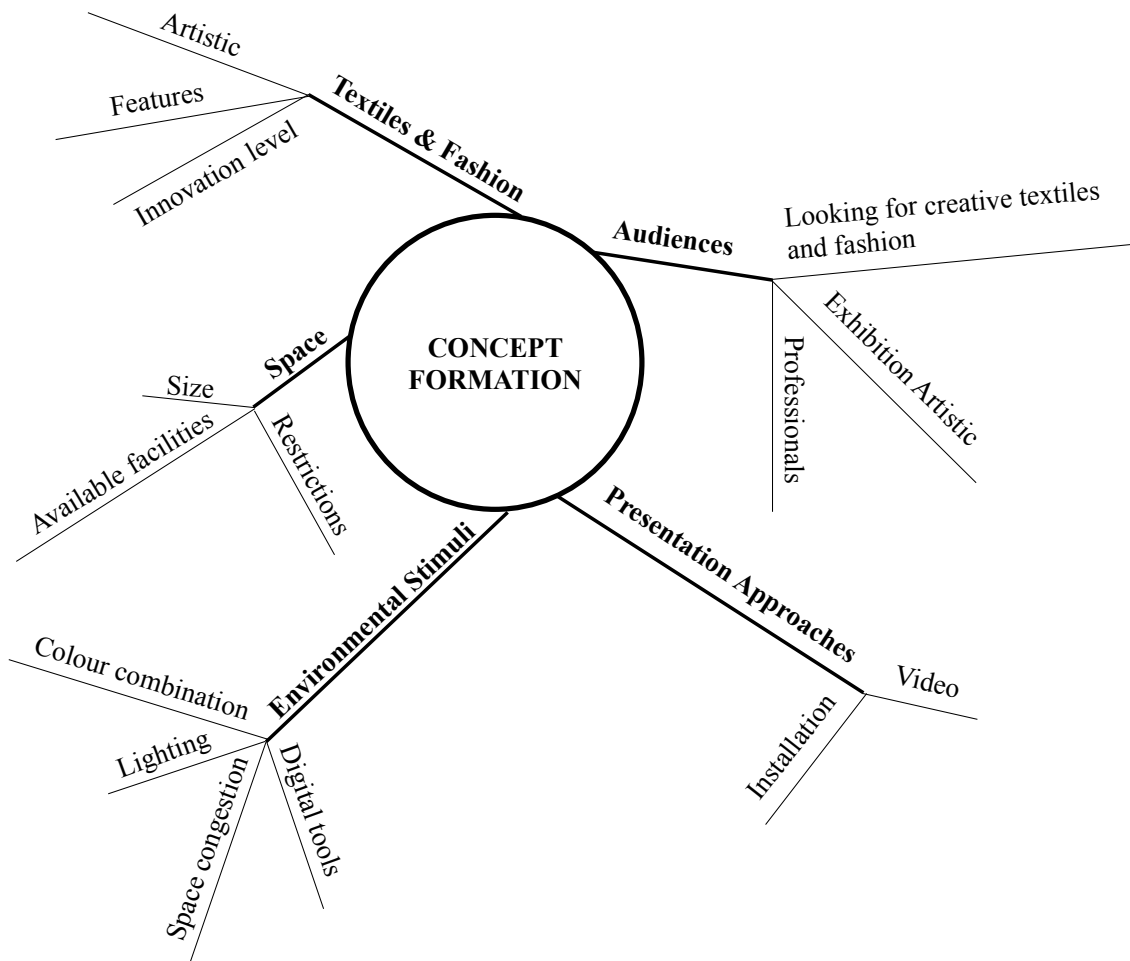


Figure 4-14: Offline Exhibition 2's Concept Formation Map

### **Investigation of textiles and fashion**

The exhibition concept was initially planned to be presented artistically and set to create a mysterious or even a weird atmosphere. After investigating the textiles and fashion, it found the textiles were in metallic colours or decorating with patterns. They might reflect various metallic light and shadow under different lights. Most textiles were large sizes that were made in chemical plating or produced by a developed roll-to-roll magnetron sputtering system. The large size textiles allowed to mould them with multiple shapes. Therefore, large and long size textile pieces were selected and grouped based on their production techniques and metallic colours, then tried to shape with different forms. In the trial process, the mountain shape gradually emerged and helped confirm the exhibition theme. However, most works were in dark colours so that the colour coordination was limited.

### **Investigation of target audiences**

As the exhibited textiles could be manufactured in large-scale and applied in high-end fashion designs, the audiences of the exhibition were planned to be the professionals in textile and fashion industry who were looking for the creative textiles and fashion designs. People who had an interest in textile and fashion exhibitions in artistic look were also the target audiences.

### **Plan of space allocation, environmental stimuli and presentation approaches**

The field investigation was conducted at the exhibition site in order to plan the exhibition layout and map the textile and fashion items. Three perspectives were investigated, including the space size, available facilities and the restrictions in the space. More details about the

space allocation and the exhibition layout were presented and discussed in the following “Layout design” section. The exhibition was planned to be presented in a mysterious atmosphere, the environmental stimuli and the presentation approaches were selected to achieve the objective such as dimming the lights.











Installations employing textiles and fashion were chosen as the visual elements to present the exhibition. Additional materials, such as videos in different themes, were presented at the exhibition site. Visual images and the audio from the videos were the added environmental stimuli. The setting details of the environmental stimuli were elaborated in the “Ambient condition” section.

## **2) Layout Design**

The exhibition was displayed in a rectangle shape space. There was a total of twelve installations displayed on-site (Table 4-5). There was no interval in exhibition space originally. The curatorial team using textiles to divide exhibition space into several small areas for different purposes. The area circled in pink was the main area for displaying installations and the areas circled in blue were the documentary areas that were playing videos and displaying with books and catalogues about previous exhibition activities (Figure 4-15). The layout and the path flow of the exhibition was designed in loop format as well. The advantages of taking this layout format were to a) divide the exhibition space clearly; b) keep the integrity and fluency of the exhibition narrative; c) naturally guide the audiences to visit as the designed path; and d) utilise the wall space.

The installations were exhibited with the merchandising presentation strategy of “landscaping”, which the installations were set in the order of close shot, medium shot and background. More information about the landscape strategy was stated in Chapter 2.2.1.2. In Figure 4-15, the audiences might start the exhibition from the star point. The area circled in green was the transitional space that displayed with two installations (work 1 and 2) that aimed to draw the audiences’ attention. An installation hanged in the centre of the exhibition space (work 6) was eye-catching, which was the close shot of the image. The installation displayed on the ground (work 5) and the clothes hanged on the ceiling (work 7, 8 and 9) echoed in the work in the central. Work 5, 7, 8 and 9 were set as the medium shot of the image. The works pinned on the wall were set as the background of the image. The scenes might change when viewing from different angles. Two small size installations and two videos were displayed in the documentary area to keep the whole visiting process connected. The sites to play the videos were precisely selected that the hardware conditions were allowed, and the video sounds did not conflict to the exhibition background music.

Table 4-5: Exhibits Displayed in Offline Exhibition 2

Titles	Images	Titles	Images
① Coating stone		② Aqueous suspension	
③ Martingale towel		④ Peak	
⑤ Cyberpunk		⑥ Patrol	
⑦⑧⑨ Hidden crisis		⑩ Shell	
⑪ Raw stone		⑫ Bamboo	

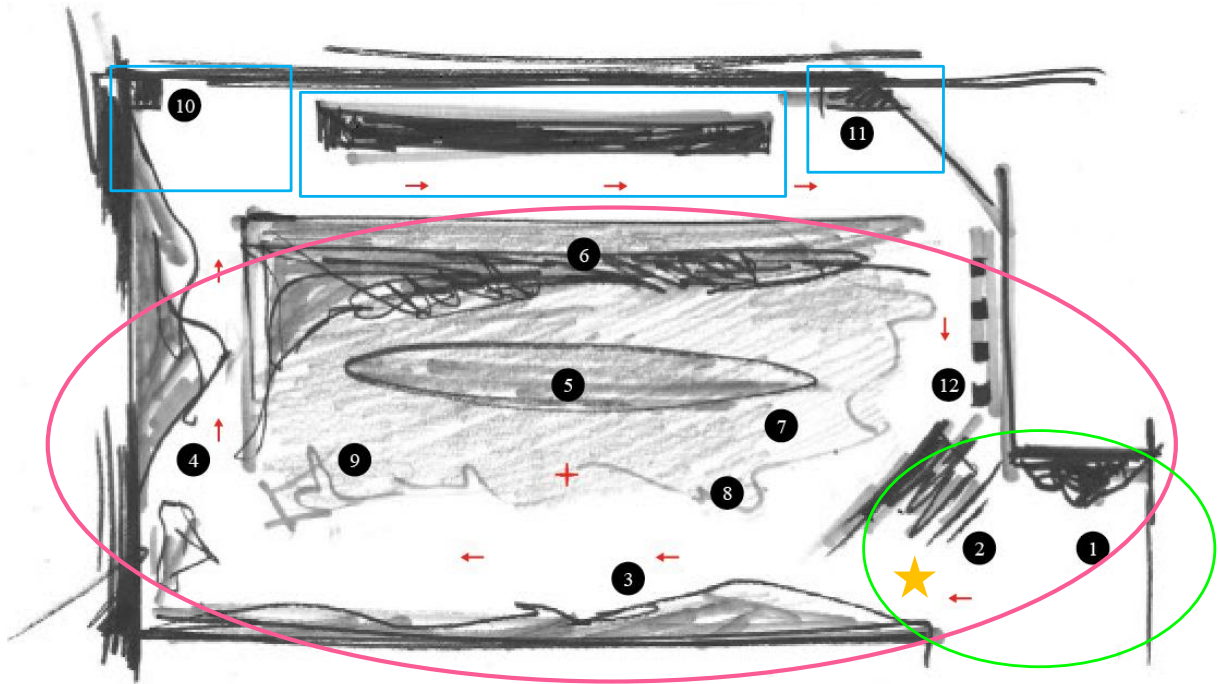


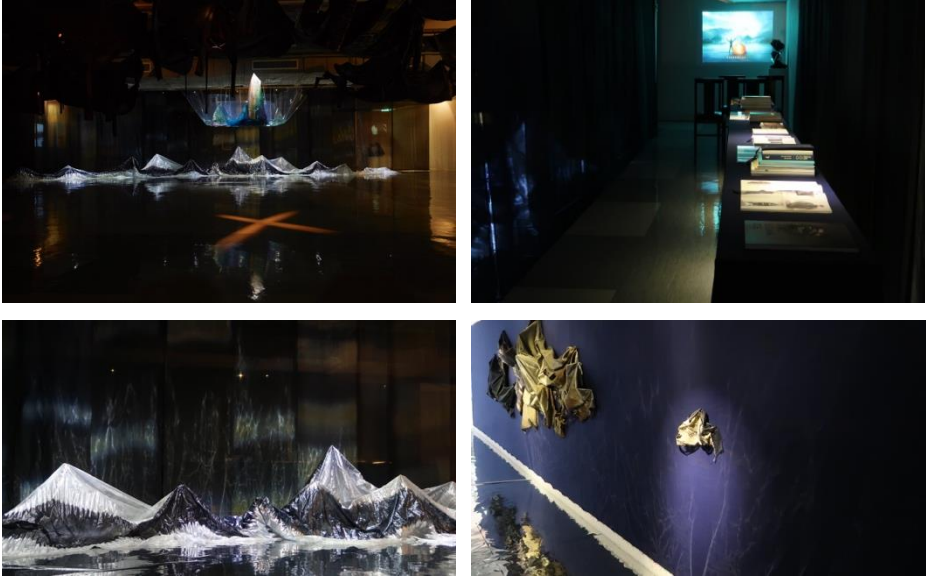
Figure 4-15: Layout Design for Offline Exhibition 2

(Green circle: transitional space; Pink circle: main area for displaying installation; Blue squares: documentary areas; Star: viewing point; Arrows: designed visiting path flow)

### 3) Ambient Condition

Ambient condition of the exhibition was mainly reflected on two perspectives of a) visual stimuli (lighting, colour coordination and employment of digital tools); and b) spatial stimuli. The image of the exhibition effects and the discussion to the ambient condition were presented in Table 4-6.

Table 4-6: Discussion of Ambient Condition in Offline Exhibition 2

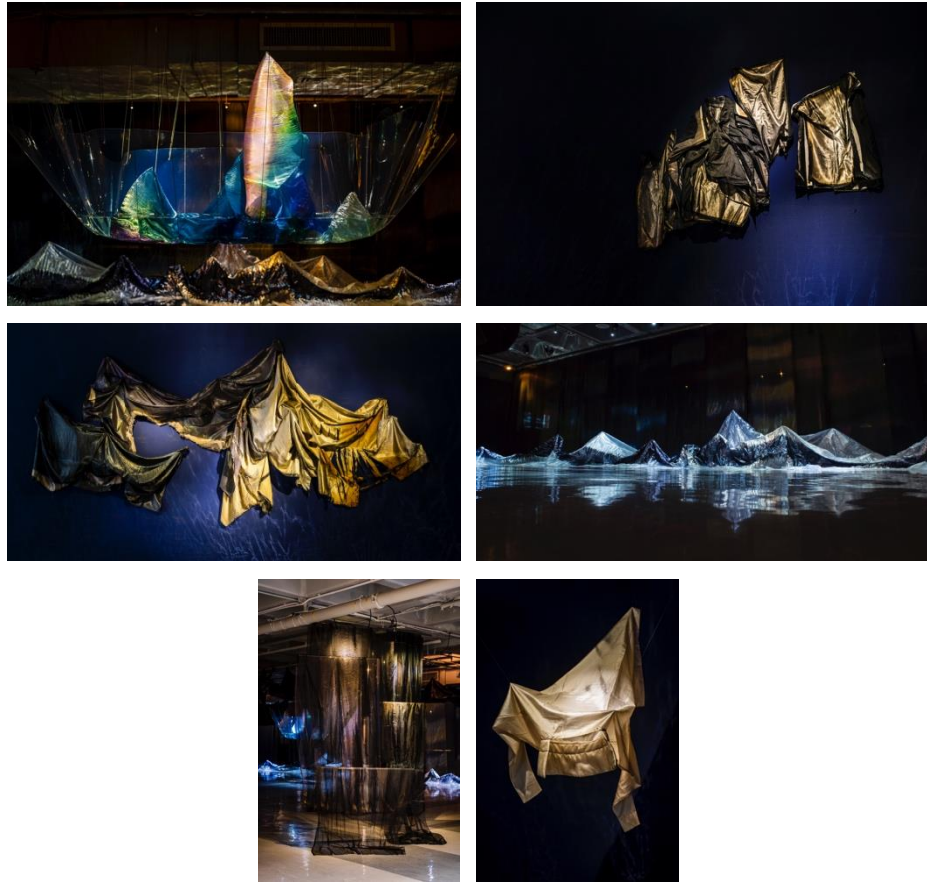
VISUAL STIMULI	
<b>Lighting</b>	
Images	
Discussions	<ul style="list-style-type: none"> <li>- The lighting in the exhibition space was set to be faint but focused on the effects of shadows formed by the light irradiation to achieve the aim of creating a mysterious atmosphere.</li> <li>- The lighting also set to reduce the interferences on the operations of the projectors installed at the site.</li> <li>- Tailor-made spotlights with warm light were produced and used on-site to show the metallic colour of the textiles better.</li> <li>- Mirror papers were employed and laid on the ground to perform the light and shadow effect better and enhance the artistically visual effects. The shadows of the works were reflected in the papers. Conversely, the sparkling effects that looked like water reflection were spot on the exhibits as well.</li> </ul>

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## Colour coordination

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### Images



### Discussions



- Most textiles were coated with metallic colour in a dark shade, while a few pieces were in a light tone or dyed with bright colours.
  - With the installations in mountain shape, the colours were combined to highlight the subtle changes in metallic colour.
  - The walls at the exhibition space were wrapped by dark blue fabrics that made the whole environment become dark and help create a mysterious atmosphere.
  - Light colour, colourful textiles or clothes were interspersed in darker exhibits.
-



## Digital tools

Images  



- Discussions
- Besides the printed leaflet that could be taken away by the audiences, all promotional materials were projected on-site in a digital way.
  - Four videos were edited for the exhibition with different themes and aimed for different purposes. Three of the videos were projected at the exhibition site, including a) an animation worked as the exhibition backdrop with exhibition information; b) a documentary video introducing the production techniques that added with the activities participated preciously; and c) a video introducing the exhibition construction process.
  - Moreover, information about the exhibition team was also projected at the end of the exhibition using projectors.
  - One music used in the animation video was set as the background music on-site. This music was also used in the video of the exhibition construction process to keep the consistency from the audio perspective.

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## SPATIAL STIMULI

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### Images



- 
- Discussions
- The installations in the space were displayed compactly.
  - The exhibits in similar colours and the faint light enlarged the compact effect.
  - The space near the shadow in cross shape was deliberately set so that the audiences could sit or stand around the installations for an observation.
- 

### 4) Interactivity Level

The interactivity of this implementation was reflected on two perspectives, a) interactive dialogue between the exhibition and the audiences; and b) the audiences' cognition to the exhibited textiles and fashion, and the potential promotional effects on “brand” in an artistic presentation method. The details of these two perspectives were explained as follows:

- Dialogue between the exhibition and the audiences

The exhibition built a dialogue platform for the audiences to communicate with the textiles. The exhibition was presented in installations that made it storytelling and added the playfulness in the exhibition. Exhibition in installation format provided a new angle for the audiences to view the textiles and fashion, but the audiences could still understand the connotation of the displayed metallic textiles and clothes based on their

background. A forum was held to provide a platform for professionals from different fields to share their thoughts about the metallic textiles and exhibition from their own opinions. Through the forum, the audiences might be inspired and have a deeper understanding of the displayed textiles and the exhibition. Moreover, the exhibition information was published online. The audiences could check and share the exhibition through social media, which also a kind of interactivity.

- **Cognition to the exhibits and the promotional effects**

Adopting a new artistic way to present the textiles and fashion in the exhibition, it might be helpful to realise something ignored before. Tradition exhibition methods may not display some textiles with production defects. However, those defects might be remedied and presented to the audiences through the art exhibition. The employment of the digital tools like animation and videos not only captured the audiences' attention quickly but also demonstrated the stories behind the textiles, such as the coating techniques and the creation progress, to audiences through the visual languages. Digital tools helped the audiences recognise the exhibited textiles more intuitively. The exhibition was a promotional activity. Publics would have an impression and basic understanding of the metallic textiles and fashion through the activity. The promotional impacts would extend to the cognition to the textile designer's other works as well.

## **5) Visual Complexity Level**

The visual complexity level of this implementation was discussed from three perspectives like the previous offline implementation, which were a) design contents; b) presentation

approaches; and c) interactive forms. The visual complexity of the textiles themselves was at a low level that only included metallic textiles and fashion. While the presentation delivered through installation format might cause a high level of visual complexity due to the various installation shapes. Therefore, it was necessary to plan the installation with a theme, unify the colour tone and control the types of digital tool employment to balance the conflict of the different complexity level. The details about the three visual complexity perspectives were elaborated as follows:

- Design contents

The textiles presented in the exhibition were coated by chemical plating or the vacuum coating technologies. Most works showed in the exhibitions traditionally presented with the methods such as hanging and wearing on the mannequins. This exhibition intended to present the works beyond the traditional methods. Moreover, some pieces were produced in the experiments aimed to explore the coating parameters, textile surfaces had some defects which might not be qualified for manufacturing in large-scale or using for fashion design. These defective textiles did not present in the exhibition or any other occasions before. In this context, to differ from the traditional exhibition presentation ways, installations were adopted to show more textiles and fashion artistically.

Artistic exhibition presentation might need to be shown through the vibrant and intentional display, high contrast in colour coordination, or creating surprising rhythm. All these presentation techniques to create an artistic atmosphere may generate high visual complexity level, which may cause anxiety once the arousal level was too high.

The textiles selected for installation creation were classified based on the size, materials, production techniques and colours to control the visual complexity level. Textiles with similar colours and patterns were grouped, large size pieces in the selected textiles were prepared for the installation. After many attempts in the installations shaping progress, the landscape theme was confirmed and unified to all installation creations. One confirmed theme and the management of the different visual elements are effective in the visual complexity control.

- Presentation approaches

The visual complexity in the exhibition presentation approaches was contracted that included presenting in an artistic style and assisting with video presentation. The metallic textiles and fashion were transformed into the elements and materials for the construction of the exhibition installations. With the classification to the metallic textiles, the installation presentation mainly focused on creating the textiles into mountain shapes to highlight the exhibition theme. Videos with different themes were distributed in different areas in the exhibition space according to the planned layout design in order to process the exhibition narrative.

- Interactive forms

The complexity of the interactive forms was controlled to be direct and straightforward. Because the exhibition was presented in an artistic way, too many interactive forms may distract the audiences' attention and ignore the messages that should be conveyed through the exhibition. Therefore, the interactivity was focused on the delivery of the

information through the display and video documentary. It was tried to create an immersive exhibition atmosphere to the audiences by the environmental stimuli of artistic exhibition presentation, light setting and music environment. The online information made it possible for the audiences to interact with the exhibition in the digital world. The exhibition could also be promoted with online information and social media. More details of the interactive forms could be referred to the previous “Interactivity level” section of this implementation.

#### **4.2.2.3 Design Results**

The exhibition was built to create an artistic and mysterious atmosphere, which aimed to discover the possibility of designing the existing metallic textiles in artistic applications and exploring the ways to present the innovative textiles and fashion besides the traditional display methods. As a new attempt, the presentation approach was focused on the installation display. Moreover, videos and leaflet were selected to act as the supplementary of the exhibition information.

##### **1) Physical Exhibition**

The textiles and the clothes were grouped based on textile appearances, textures, materials and sizes. With the measurements to their mouldability, the textiles were fixed on the wall to create installations in mountain shapes. Some textile pieces were displayed on the ground and hanged. Clothes were interspersed hanged on the ceiling that looked like some unidentified objects flying in the air. It should mention that the mountain shape was not planned deliberately. It emerged gradually during the installation creation progress. The

mountain shape and the exhibition theme of the landscape were in accordance with the designer's design philosophy as well as compatible with other installation shapes. Thus, the walls in the exhibition space were renovated with textiles before the installations fixed on the wall. Both the renovated wall and the hanging clothes helped create the mysterious atmosphere for the exhibition.

## **2) Videos**

Four videos were edited to help deliver the exhibition messages and elaborate the metallic textiles and their production technology. The themes and contents of the videos were described as follows:

- Video 1: This video was edited in the animation format and worked as the exhibition backdrop (Figure 4-16). A Chinese character means “cloth” was written in two types of calligraphy, one used ancient font style, and another one used a modern font style. The visual elements of the video were extracted from these two calligraphies. The video was designed in a black background and began with a dynamic pattern composed of strokes extracted from the calligraphy to describe how human beings were weaving yarns into cloth in ancient times. Then, the strokes scattered like disappearing into space. It reappeared and became another cloth character in a modern font style. The video focused on the dynamics of visual elements and implied the technological changes and development in the textile and fashion industry. A piece of music sounded like metal banging was chosen as the background sound for the video.

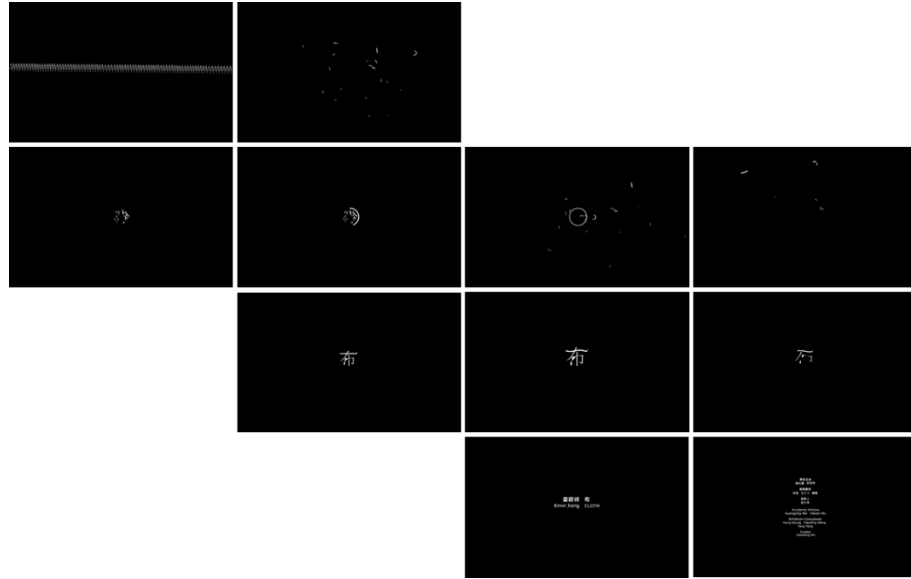


Figure 4-16: Video 1 Edited for Offline Exhibition 2

- Video 2: Due to all textiles were presented in installation format, the second video recorded to the progress of the exhibition's construction, which was playing on-site to let audiences know about how the exhibition was planned and created (Figure 4-17). The video was edited to emphasise on a sense of handmade so that the video showed the handmade process of primary installations displayed on-site. The video demonstrated how the installation was created from a piece of cloth and reshaped to a totally new image.





Figure 4-17: Video 2 Edited for Offline Exhibition 2

- Video 3: According to the exhibition objectives to promote the exhibited textiles and clothes, the third video turned the perspective to the textile production technology and their applications (Figure 4-18). The video was edited by combining previous videos that recorded introductions of chemical plating and sputtering coating process. Clips about the earlier exhibitions and fashion shows were also included to show the coated metallic textiles and clothes.

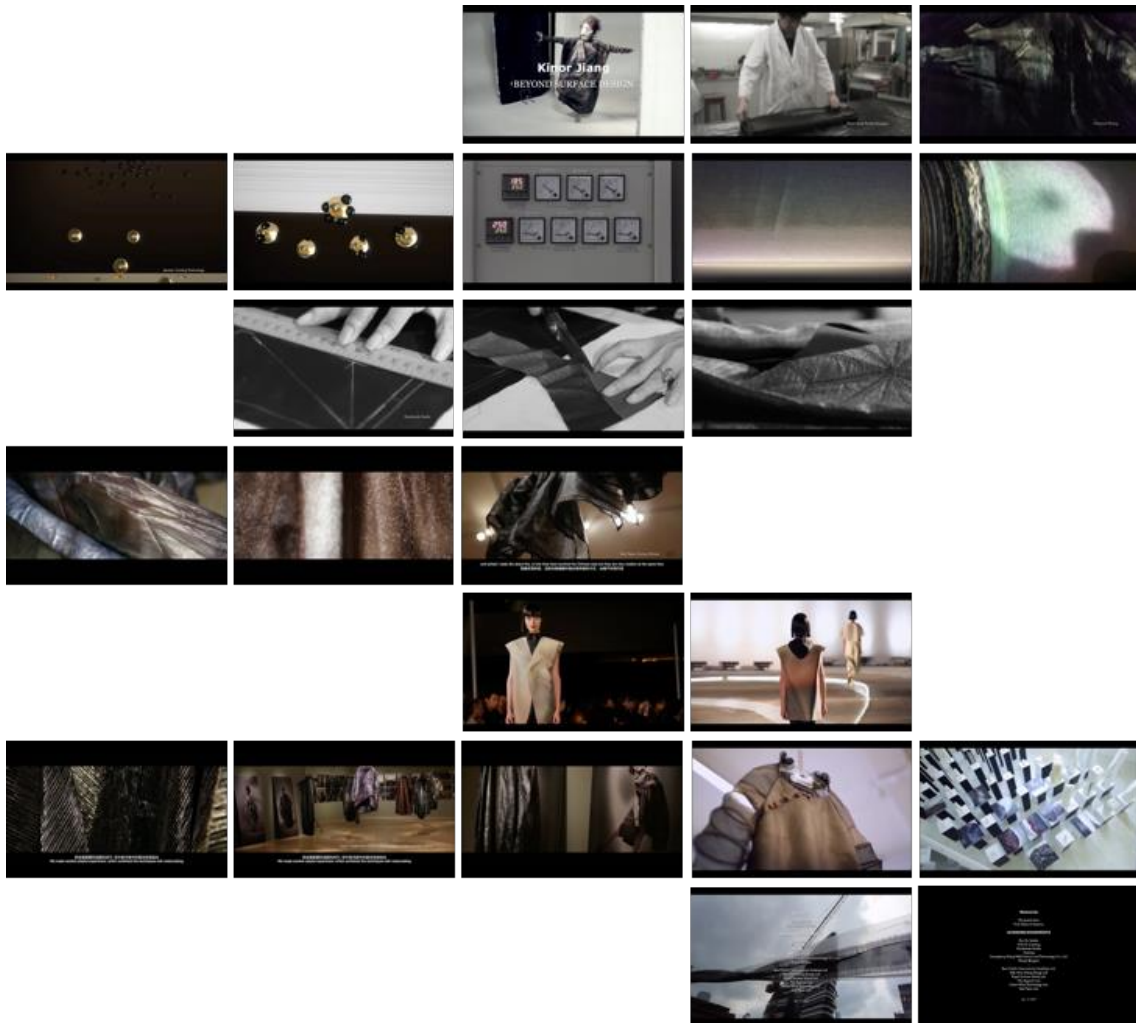


Figure 4-18: Video 3 Edited for Offline Exhibition 2

- Video 4: The fourth video was about the exhibition's final images exhibition (Figure 4-19). It was not played at the exhibition site but used to promote and share the exhibition online. The video was shot in an audience's view when he/she was visiting the exhibition. The video aimed to attract more audiences to explore the exhibition on-site. The information about each installation was placed at the end of the credits with front image and text information.

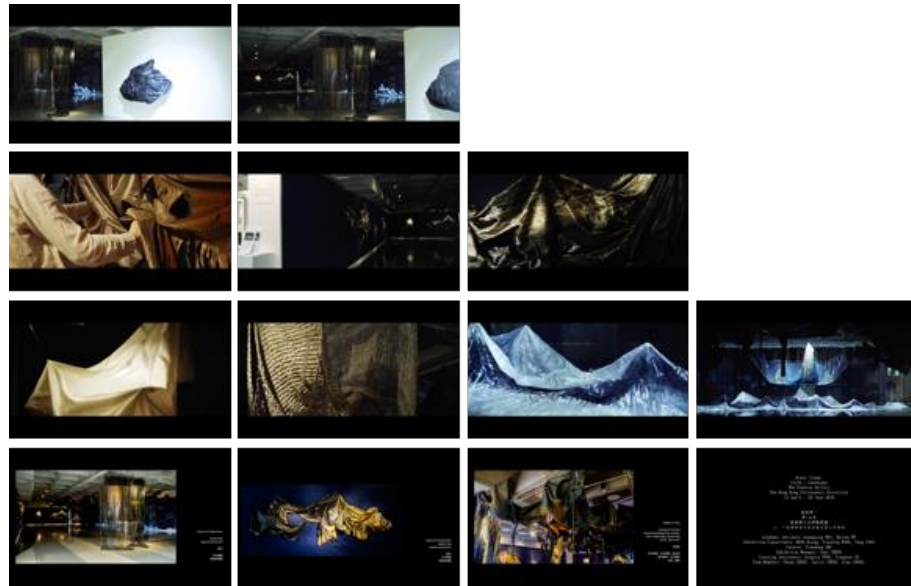


Figure 4-19: Video 4 Edited for Offline Exhibition

### 3) Leaflet

A leaflet printed on A4 size paper was prepared for the exhibition and played the role of the exhibition introduction. Audiences could collect the leaflet at the entrance of the exhibition. The contents of the leaflet were edited as the statement of the curator, statement of the designer, exhibition map, exhibition design concept, name list of experts attended the forum and exhibition team, and the exhibition related website pages (Figure 4-20). Audiences could know more information about the exhibition from the designer's statement and understand the exhibition design concept from the curator's statement and exhibition design concept. As the exhibition was presented in an installation format, the allocation of the exhibits and exhibition layout design might not be easy to be detected as traditionally exhibitions. Therefore, exhibition map was essential to help the audiences have an overview of the exhibits layout before they were visiting the exhibition.



After the exhibition was settled down and opened to the public, the exhibition information was published in the section of “Current exhibition” (Figure 4-22). The information consisted of the necessary exhibition information (i.e., exhibition title, exhibition period, organisers, exhibition team), introduction, exhibition photos and a video about the exhibition. The audiences could check the exhibition information online even they could not visit the exhibition directly. If the audiences had an interest in the exhibition, they could visit the exhibition in person. Once the exhibition finished, the information published in “Current exhibition” would be moved and established a new page in the “Exhibition history” section. The exhibition information would be archived on the website as a kind of information file. The information online enjoyed the advantages of sharing with people and promoting easier.

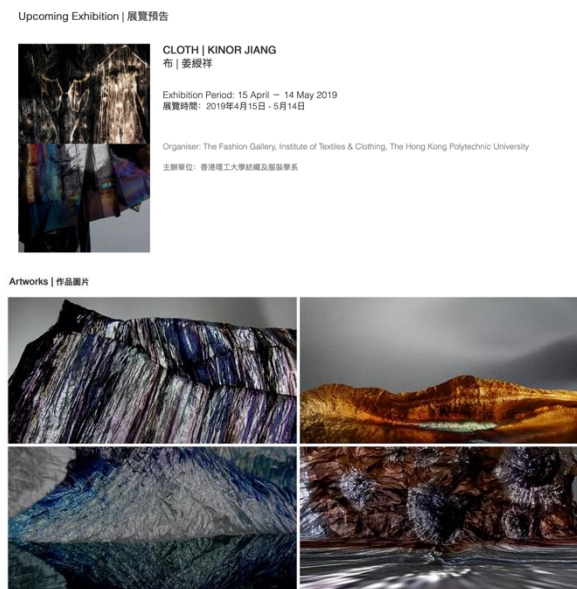


Figure 4-21: Online Information about Offline Exhibition 2 for Pre-publicity

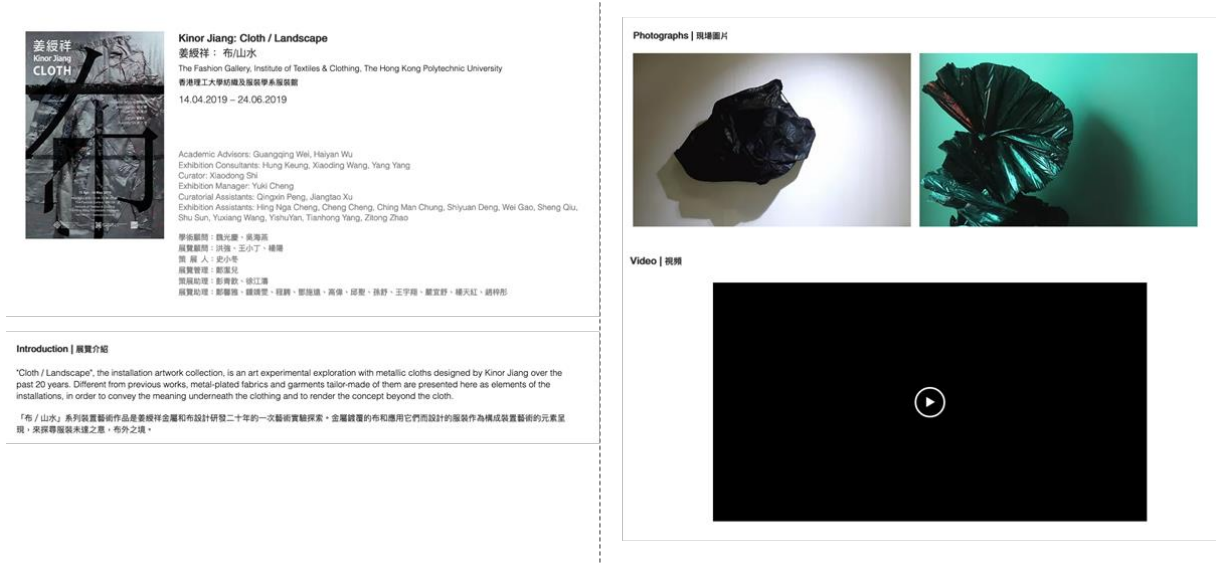


Figure 4-22: Online Information about Offline Exhibition 2

## 5) Online Public Promotions

This exhibition was promoted through the online platforms to connect with the public. The promotional information and the promotional resources were prepared and published by the exhibition team. More online media was selected to publish the information. The promotional information was prepared from two directions. One direction was about providing necessary exhibition information to audiences. Another direction presented an overview of the exhibition results. The information of the online promotional materials has been attached in Appendix 3.

### 4.2.2.4 Summary of the Implementation

For this offline exhibition implementation, the narrative of the exhibition and the artistic presentation form were critical for the exhibition performance. The metallic textiles and fashion designs were employed as design elements and shaped to installations to present the



textile features in the physical space. The artistic effects and the exhibition atmosphere were created by the delicately designed environmental stimuli of visual stimuli (installation displays, lighting) and spatial stimuli. The textile installations were eye-catching at the exhibition site, and the exhibits were narrated around the theme of “landscape”. Besides the textiles and fashion presented in installation physically, promotional materials and exhibition information were digitally projected at the site. The video was employed as the leading digital tool to elaborate on the characteristics of the metallic textiles and fashion. Videos were edited with different themes to highlight the textiles features from multi-dimensional. The limitation reflected from this implementation is that the space recruited for the artistic presentation is limited. The installations were displayed a little bit crowded. If using artistic way to present the textiles and fashion, the requirements to the innovative textiles and fashion are relatively high in terms of the textile’s artistic quality, expressiveness and mouldability.

#### **4.2.3 Online Exhibition – Look Loop: Transitional Knitting**

An online exhibition called “LOOK LOOP: Transitional Knitting” was implemented as an online digital visual merchandising. This exhibition was a collection of knitting textile and fashion designed by Yishu Yan. It was an experiment to present an exhibition in an online format that aimed to promote innovative knitting textiles and fashion. The presented knitting textiles and fashion were developed by using knitting technology for three-dimensional and stretchable knitting textiles.

*Yishu's study focuses on developing a new design approach for three-dimensional and stretchable textiles using knitting technology. This young designer experiments and uses a digital approach in more than 40 works that simultaneously highlight textile transition and fashion art forms. (Quoted from exhibition introduction)*

Through this online implementation, the possibility and efficiency of employing online exhibition as a presentation method for digital visual merchandising have been proved. The basic exhibition information has been listed in Table 4-7 The exhibition poster has been presented in Figure 4-23.

Table 4-7: Information about Online Exhibition

Items	Information
Title	LOOK LOOP: Transitional Knitting – Research Work by Yishu Yan
Period	Start on 18 June 2020
Format	Online exhibition
URL	<a href="https://www.fashiongallery.hk/lookloop">https://www.fashiongallery.hk/lookloop</a>

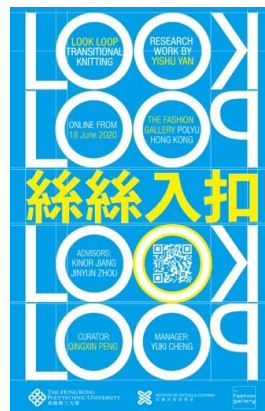


Figure 4-23: Poster Designed for Online Exhibition



#### **4.2.3.1 Design Process**

With the experience accumulated from the offline implementations, the online exhibition was designed and completed in a six-step procedure (Figure 4-24). The exhibition adopted a presentation method that constructed the exhibition at a physical space and then presented through video and photos instead of establishing in a virtual environment. Hence, the exhibition preparation work in the early stage was similar to the offline exhibition display. The later work focused on the shooting and editing of the exhibition video and photos, which was to present the textile features from a better perspective.

The first step was to conduct a preliminary selection of the textiles. The textiles prepared for the exhibition were knitted with the same yarn. The differences of the textiles lied in the various 3D textured formed by different knitting structures or one texture structure in different colours. Therefore, the criteria for textile selection and classification were based on the colours, textile structures and sizes. The target audiences of the exhibition were the textile experts, fashion designer, educators and students who had an interest in knitting fashion designs. As the exhibition was presented online, the public who was digital savvy was hoped to involve in visiting the exhibition.

The final image of the exhibition was presented by video on the website, the impact of the space environment, such as the space size, on the exhibition was relatively slight. The main concern considered to the space allocation and the location of the exhibits was the final image would appear in the video. The performance of the video rhythm and the website's graphic layout were planned in the space allocation step.

According to the features of the displayed knitting textiles, the exhibition concept was confirmed to highlight the shapes and the textures of knitting textiles. The contents of the video and photos and the contexts planned to publish online were formulated at the scheme design phase. In the exhibition construction step, the first step was to construct the exhibits at a physical space according to the planned exhibition concept. The second step was to shoot and edit the video and photos, then completed the graphic design on the website platform. The exhibition was released online after a review of the edited video and re-touched photos.

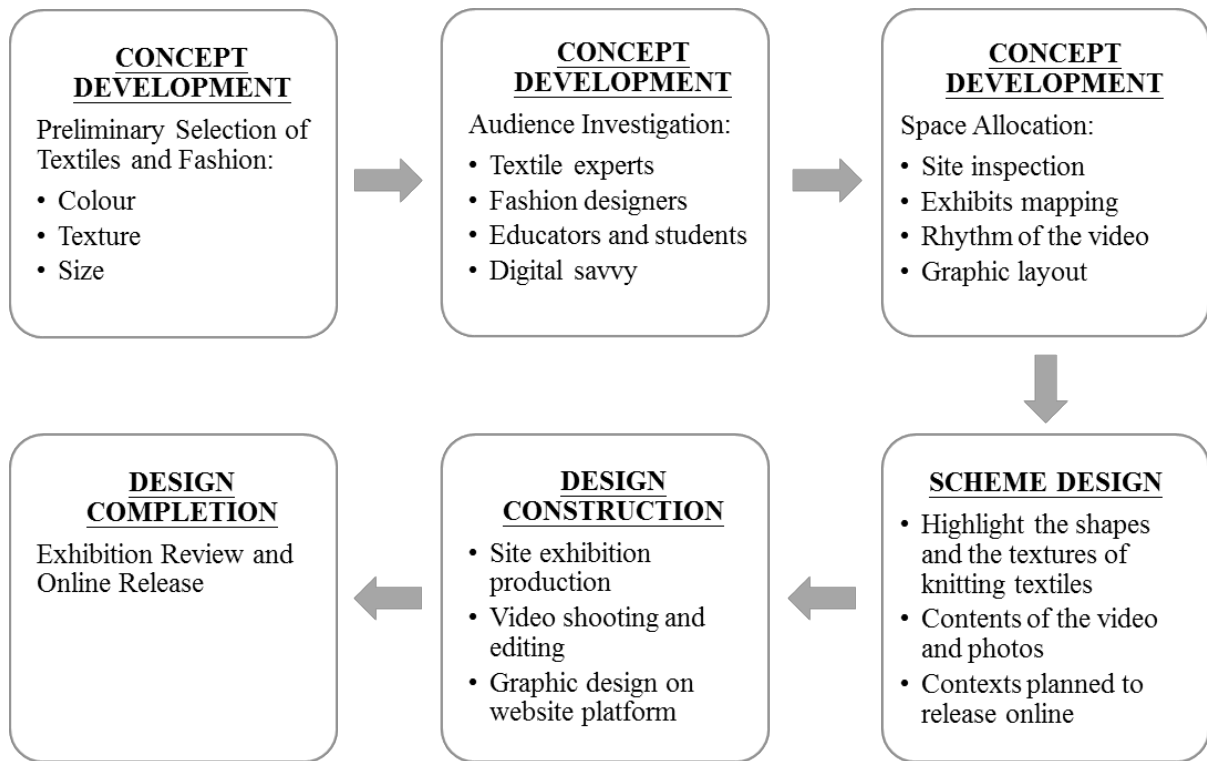


Figure 4-24: Design Process of Online Exhibition

#### 4.2.3.2 Analysis of Design Factors

##### 1) Concept Formation

With the field investigation, considering the available facilities and technical problems, the exhibition was planned to construct in a physical space then reflected the exhibition online by video, photos and text descriptions. Hence, the exhibition concept was formulated based on the experiences from offline implementations in five perspectives of a) review on the knitting textiles; b) investigation of the target audiences; c) tentatively allocating the textiles in the physical space and the planning the layout for the website graphic design; d) specifying the environmental stimuli from the online perspective; and e) specifying the contexts for the confirmed presentation approaches (Figure 4-25).

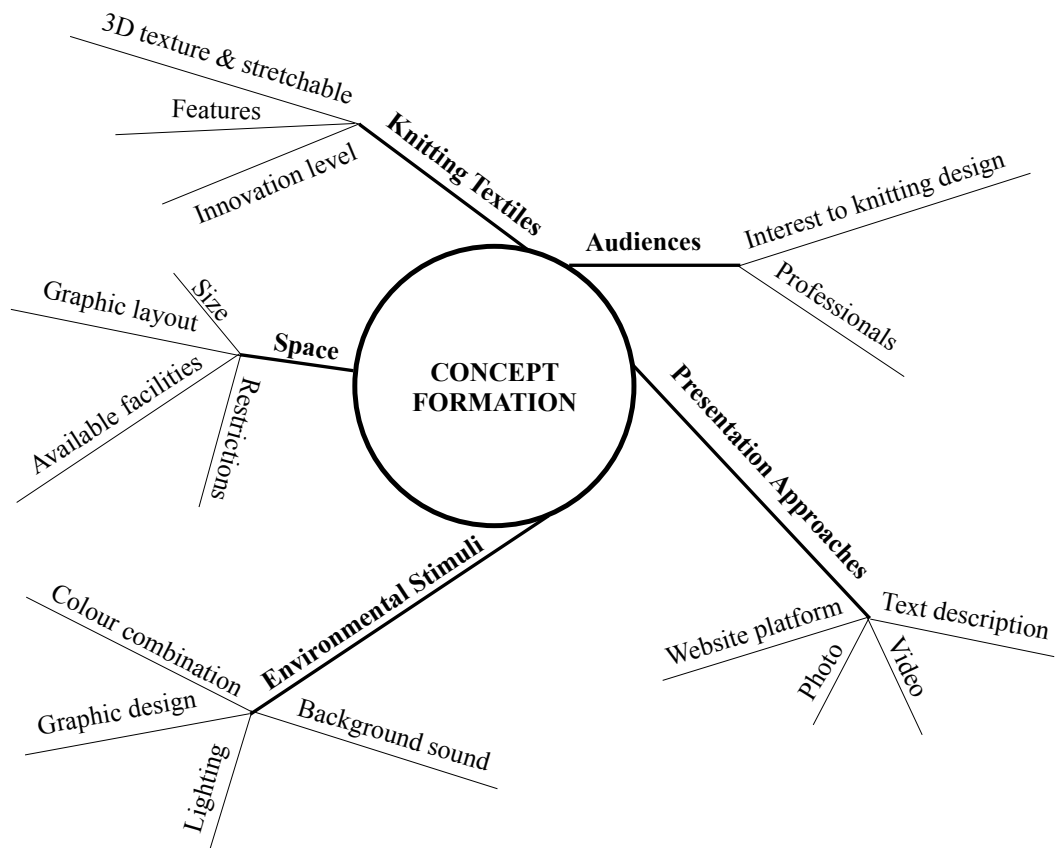


Figure 4-25: Online Exhibition's Concept Formation Map

### **Investigations of the knitted textiles and fashion and target audiences**

The innovation level was evaluated in order to identify the textiles' features. The knitted textiles planned to show in the exhibition were knitted with the same yarn but presented with different textures and in various sizes. With the discussion to the designer, the investigation of the textiles focused on the 3D textures and stretchability. The criteria for selecting and classifying the textiles were based on the colours, textile structures and sizes. The size of the textile pieces was also ranked for the preparation of the exhibit's allocation. When sorting the textiles, it found that most pieces were white tone in different sizes, and a few pieces were in yellow tone, red tone and blue tone. The target audiences for the exhibition were set to be the people who have an interest in knitting design and the professionals in the fashion and textile industry

### **Plan of space allocation, environmental stimuli and presentation approaches**

The exhibition was presented in an online format, and the exhibition space was divided into the layout of the physical space and virtual space. The space size, available facilities and restrictions of two platforms were investigated. The graphic layout of the website was also considered and confirmed in the concept formation stage. With the results of space investigation, the environmental stimuli were established in terms of the colour coordination of the exhibits at the exhibition site, the lighting plan for the exhibition visual performance, the style of the website graphic design and the background music for the exhibition.

The presentation of the exhibition was shown from the aspects of website design, video, photos and text descriptions. All these aspects were presented to explain the principles

underlying the textiles knitting techniques and highlight the 3D textures and stretchable features. The exhibition aimed to let the audiences realise the aesthetics of the knitting textiles and appreciate its value in transitional fashion designs.

## **2) Layout Design**

The exhibition layout design was completed from two phases, which were the layout in physical space and the layout in website graphic design. The textiles were classified into four collections based on the colour and displayed in the loop format. As shown in Figure 4-26, when visiting the exhibition, the audiences would see a white fashion piece first, which was set as the transitional area for the exhibition. Textile pieces in white tone were hanged in the centre of the gallery. The colourful pieces were placed on the other three sides with small square tables. Considering the visual comfortability and referring to the size and the number of the textile pieces, textiles with fewer quantities (pieces in yellow tone) or smaller sizes (pieces in blue tone) were placed at the sides.

As shown in the figure about the exhibition website page (Figure 4-27), the web page was designed with an order of basic exhibition information, message by the curator, video, exhibition photos, research methodology and designer profile. The graphic design followed the website's design template and listed out the information with the stated order. It was hoped the website viewers could scroll the page to check different parts quickly. In this context, the order should be considered to plan to narrate the exhibition story, present the textiles clearly and set the order to be following the viewing behaviours. Only in this way,

the exhibition information might be efficiently transmitted and received by the audiences accurately.

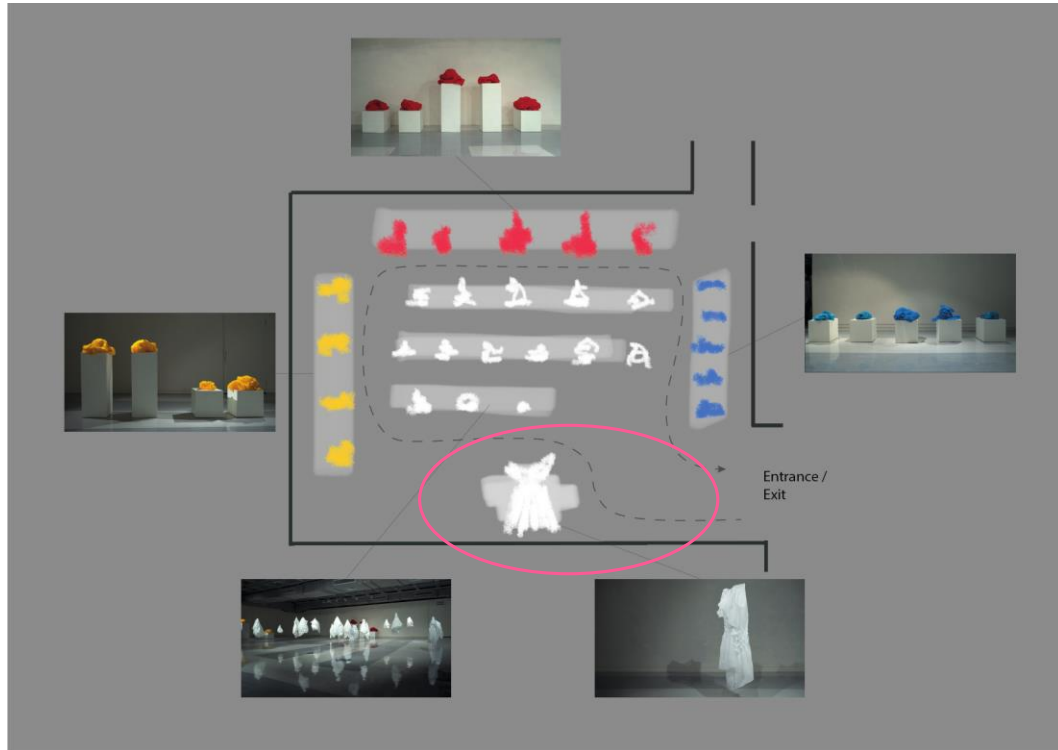


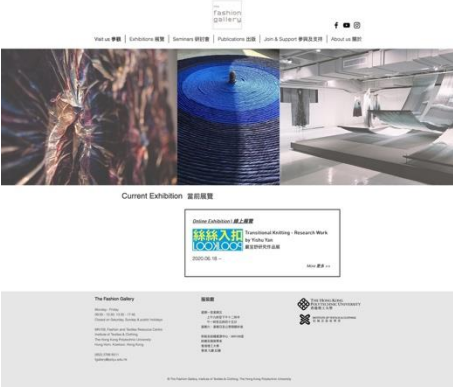

Figure 4-26: Layout Design for Online Exhibition

(Pink circle: transitional area; Arrow: path flow)

### 3) Ambient Condition

Ambient condition of this online exhibition was reflected on four perspectives of a) visual stimuli, b) spatial stimuli, c) auditory stimuli; and d) interactive experience. The image representing the effects and the discussion to the display results were presented in Table 4-8.

Table 4-8: Discussion of Ambient Condition in Online Exhibition

VISUAL STIMULI	
<b>Digital tools</b>	
Image	
Discussions	<ul style="list-style-type: none"> <li>- The Gallery's official website was the online platform for publishing the exhibition.</li> <li>- Exhibition information was posted and highlighted at the "Current exhibition" area at the website homepage.</li> <li>- Simplified exhibition poster was placed in the "Current exhibition" area, and the specific exhibition page was linked to the poster and the texts.</li> <li>- Video and photos were selected to present the exhibition and texts were employed to describe the details and supplement to the video and photos.</li> </ul>
<b>Colour coordination</b>	
Images	

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## Discussions

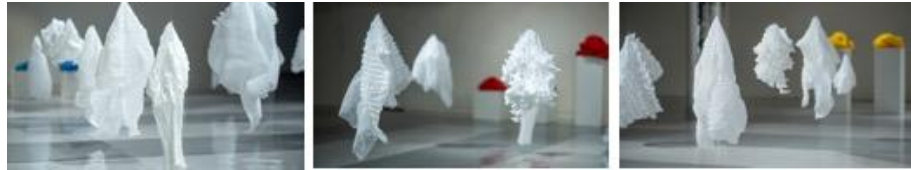


- The exhibition was organised by grouping the works based on textile colours.
- Four collections were formed according to the extracted colours and allocated at the exhibition site.

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## Lighting

### Images



- 
- |             |  |
|-------------|--|
| Discussions | <ul style="list-style-type: none"><li>- Most pieces exhibited in the exhibition were in white tone. The light was set to be bright so that the textile textures and details can be well seen.</li><li>- Considering the exhibition was presented by video, the lighting should meet the requirements for filming. A brighter light was set to ensure the quality of the video.</li></ul> |
|-------------|--|
- 

## SPATIAL STIMULI

### Images



- 
- |             |   |
|-------------|---|
| Discussions | <ul style="list-style-type: none"><li>- The clothes hanged in the transitional area was separately placed in the area and intended to distinguish with other works.</li></ul> |
|-------------|---|
-

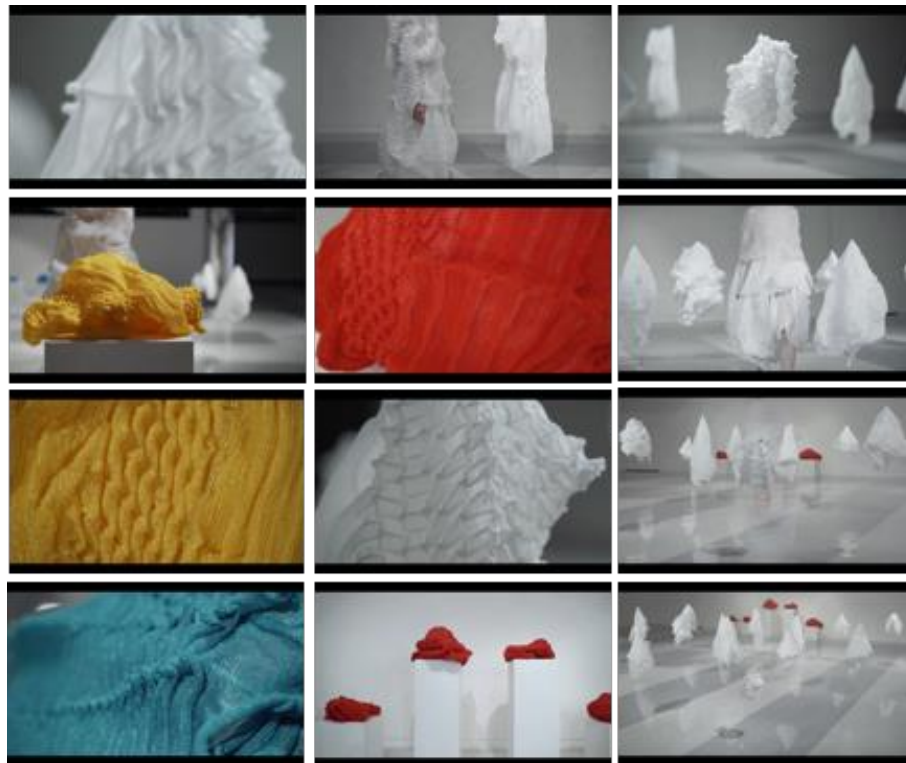


- 
- The white tone collection was hanged in the centre of the space, which occupied most exhibition area and played the role of atmosphere creating.
  - Colourful pieces were set aside in the exhibition area to enrich the visual complexity.
  - Even it was an online exhibition, the spaces between the works in the physical space were set as the offline exhibition in order to create the feeling as visiting the exhibition in person.
- 

### AUDITORY STIMULI

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Images



- 
- Discussions
- The sound was generated by the music selected for the exhibition video.
  - The music was selected considered the highlight the concept of the textile and fashion design as well as the exhibition narrative. The plots of the video were edited, which combined the music rhythm. The background music was relatively intense in the climactic part of the story.
-

- Considering the audiences might view other information showed on the web page before the video ended, there was no other music set for the background music for the page.

## INTERACTIVE EXPERIENCE

### Images

Current Exhibition 當前展覽



Video | 視頻



Exhibition Photos | 展覽圖片



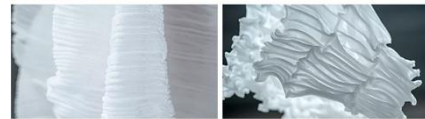
Current Exhibition | 當前展覽



Organizer: The Fashion Culture Institute of Tsinghua & Clothing, The Hong Kong Polytechnic University  
Curator: Yishu Yan, Yan Yan Yan  
Curator: Qingping Peng  
Manager: Yan Yan Yan



Collection 1 - Bright White | 系列一 - 月白



- Discussions
- The link to the exhibition page was connected to the website homepage. Audiences could conveniently click the poster or the texts to reach the site.
  - The video was the leading platform for the exhibition presentation. The graphic elements in the video display were carefully designed. The size of the video window, the design of the play button and the background image of the initial screen were taken into considerations.
  - The photos were set to play automatically, and the pictures might pop-up to check larger photos with captions when clicking on the page. The variety in the viewing methods added the visual complexity to avoid any boredom during the visiting.

#### **4) Interactivity Level**

The interactivity of this implementation was reflected on three perspectives, a) interactions between the knitting textiles and audiences; b) interactive experience creating by the online viewing; and c) promotional effects on the knitting textiles. The second point has been discussed at the “Ambient condition” section of this implementation. The following parts will discuss the rest two points.

- Interactions between the exhibits and audiences

As an online exhibition, the interaction between the exhibits and the audiences became indirect. Hence, the exhibition was curated to reflect the physical exhibition online and developed an approach to present the innovative textiles and fashion by narrating through video, photos and documentary. This implementation could be an alternative to the fashion and textile brands to project their physical stores to online platforms to involve in more audiences. Within this online exhibition, audiences could visit the exhibition through a real and ideal perspective from the video and explore the exhibits' details through more photos. The documentary gave supports to elaborate the textile principles from a theoretical perspective.

- Promotional effects on the knitting textiles and fashion

The exhibition in the online format provided an opportunity to promote the knitting textiles using digital knitting in a border platform. The online hierarchy allowed the audiences to reach and visit the exhibition through the internet without any limitations. The video and photos reflected the exhibition in a digital way, while the knitting textiles

were presented in an aesthetical perspective, and the fashion provided a reference to the audiences about the applications of the knitted textiles. With the illustration in the documentary, audiences could have a deeper cognition to the textile research methodology. Overall, through this online exhibition, the appearance and performance of the knitting textile and their applications were promoted.

### **5) Visual Complexity Level**

The visual complexity of this online implementation was also discussed from three perspectives, which were a) design contents; b) presentation approaches; and c) interactive forms. The visual complexity of the knitting textiles was at a moderate level that the material and the knitting techniques were same. However, the colour of the textiles was in high hue and distinct. The presentation method was intended to control at a moderate level that was planned to hang the works in white tone in the air and display the colourful pieces on lower tables. The details about the three visual complexity perspectives were elaborated as follows:

- **Design contents**

The exhibition aimed to show the 3D texture and stretchability of the knitting textiles in digital knitting. The visual complexity of the textiles was at a moderate level that mainly varied in the different textile textures and colours. The visual complexity of the exhibition concept and presentation approaches were decided to keep at a moderate level as well. The video and photos were shot and edited to demonstrate the textile textures in different shaping conditions, and the aesthetics of the textiles was reflected with the lighting effects.

- **Presentation approaches**

The knitting textiles were displayed in a physical space employing hanging and flat display methods as the preparation for capturing video and photos. Textile works were displayed in the areas according to the textile colours and sizes. Commonly digital tools (i.e., video and photos) were employed to present the exhibition online. Text descriptions acted as the information supplementary. The selection of the presentation approaches avoided to create any high visual complexity that might cause any confusion in the exhibition viewing process.

- **Interactive forms**

The interactivity focused on creating a convenient and enjoyable interactive experience when they were viewing the exhibition online. The approaches for the exhibition presentation were selected and designed to draw audiences' attention quickly. More information of the interactive forms could be referred to the previous "Interactivity level" section of this implementation.

#### **4.2.3.3 Design Results**

In order to achieve the aim of highlighting the three-dimensional texture and stretchability of the knitting textiles and presenting online, the website was selected as the online platform for the exhibition presentation and transmission. Digital tools such as video and photos were edited as the vehicle for exhibition presentation. Being an exhibition presenting research work, a documentary about the research methodology was showed in diagrams. Thus, the exhibition was promoted through social media on a broader scale.

## 1) Online Publishing

The organiser's official website was employed to present the exhibition and release relevant information. As an online exhibition, the demands of the target audiences were taken into considerations when planning the exhibition contents in the concept formation stage. The exhibition was presented on the website with the contents of basic exhibition information, message by the curator, video, exhibition photos, research methodology and designer profile (Figure 4-27). The graphic designs followed the website page design template but made some revisions in order to meet the visual needs and reading requirements. The central part of the exhibition was the video, which was shot in the viewer's perspective. Detailing photos of the works were supplementary to the video.

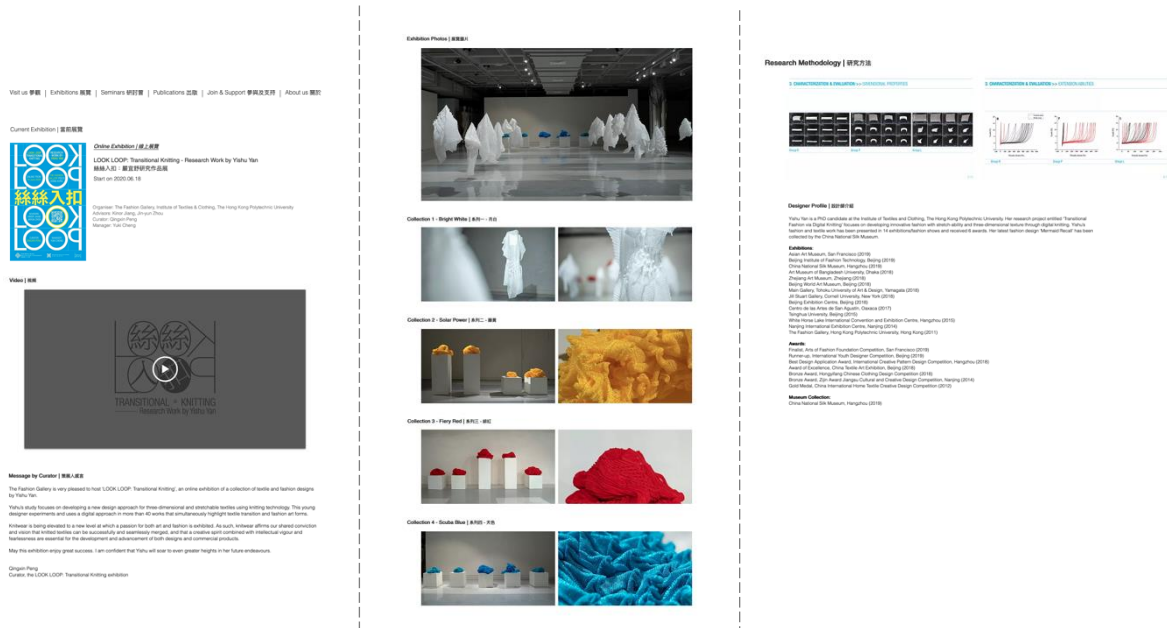


Figure 4-27: Online Information about Online Exhibition

## **2) Video**

A video less than two and a half minutes was edited to show the exhibition. The textiles were displayed in the Gallery first and worked as the footage of the video. The video was narrated in the order that an audience was visiting the exhibition and following the designed path flow. The panoramic and detailed images of textiles appeared in the video repeatedly to consolidate the audiences' cognition to the textile's textures. A model wearing the displayed knitting clothes was acting as the guider of the exhibition and the hint to distinguish the different exhibition areas. The video was consciously clipped to control the rhythm. The jumping and running character speeded up the rhythm and pushed the story to the climax. The title and the exhibition information were embedded at the end of the video to make it complete and could be shared with other platforms. The screenshots of the video were combined in Figure 4-28 to help understand the contents of the video.

## **3) Photos**

The exhibition photos were supplementary to the video, which were presented in two parts. The first part was about the full image of the exhibition site from different angles, which gave the audiences an overview of the exhibition. The second part was the images of the grouped works. Each group had a front image and several detailed photos. The knitting textiles were classified into four collections based on the colour. The photos were set to play automatically, and each photo stayed for three seconds to give plenty of time to the audiences to view the photos. Audiences could click on the photo to enlarge the photo and check in the pop-up window (Figure 4-29).

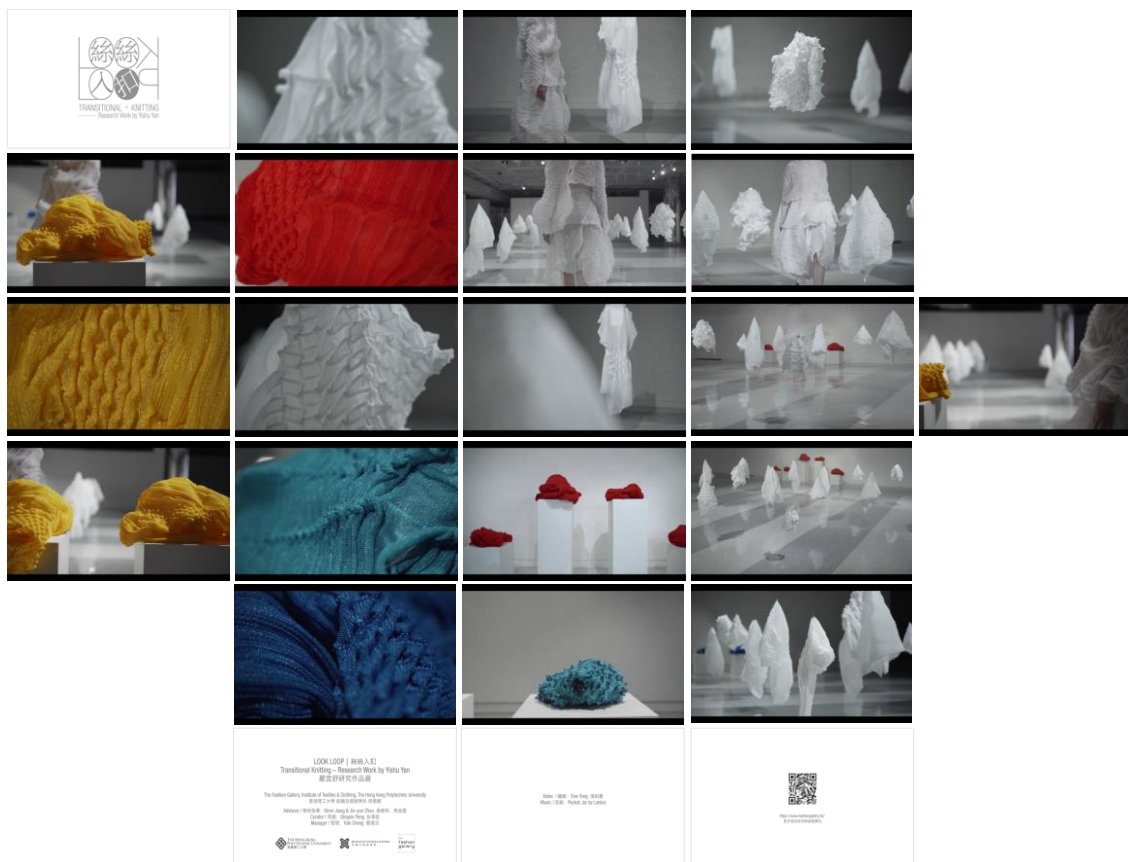


Figure 4-28: Video Edited for Presenting Online Exhibition

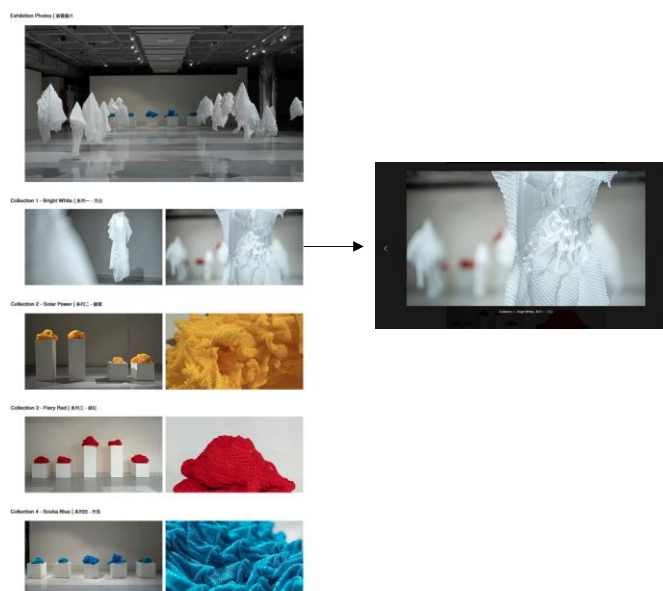


Figure 4-29: Exhibition Photos Published Online



#### **4) Documentary**

A documentary about the research methodology and the designer's profile was presented as a part of the exhibition to help explain the design principles and the production process of the exhibited textiles. The research methodology was elaborated in three steps to explain how the stretchable 3D texture textiles were created through digital knitting and developed to transitional fashion. The participated exhibition and received awards by the designer were listed in the profile to let the audiences to know more about the designer.

#### **5) Social Media Promotions**

Social media plays an important role in the promotion of an online exhibition. Facebook and Instagram were employed to release the exhibition information to the public. Brief exhibition introduction in bilanguage and hashtags were edited to make the audiences have a quick look at the exhibition contents. One exhibition poster and five exhibition photos were selected for the online post. Posters in vertical and horizontal directions in different sizes were designed for different promotional occasions. Link of the exhibition website page was provided in the post description, and a QR code was placed on the exhibition poster to let audiences to scan and visit the site quickly (Figure 30). Other media such as the WeChat public account was also employed to promote the exhibition. People can check the information with their mobile phones and share to others conveniently. The promotional information has been provided in Appendix 4.



Figure 4-30: Exhibition Promotion through Social Media

(Facebook: left; Instagram: right)

#### 4.2.3.4 Summary of the Implementation

This online exhibition presented innovative knitting textiles in 3D dimensional texture and with stretchability in digital form. Textiles and fashion were classified and grouped by colours, then displayed in the physical space and digitalised on the website with video, photos and documentary. Due to the exhibition was conducted in an online format, it took the convenience of sharing freely through social media. The implementation provided a template and an alternative for emerging designers and fashion brands to present and promote new/innovative products digitally with the available recourses. However, the methods for checking the works were limited that only offered by the video and photos.

## 4.3 Design Factors Interpretation

### 4.3.1 Concept Formation

A map has been developed to assist in the formation of the digital visual merchandising design concept aiming for promoting innovative textiles and fashion (Figure 4-31). The concept formation process can be established from five perspectives in terms of research on the innovative textiles and fashion, investigation of the target audiences, filed investigation of the space, available presentation approaches and the proposal of environmental stimuli design plan. As shown in the figure, several sub-points may diffuse from the perspective that are the specific task should be investigated and planned in the concept formation process. The contexts of each perspective will be specified in the following sections.

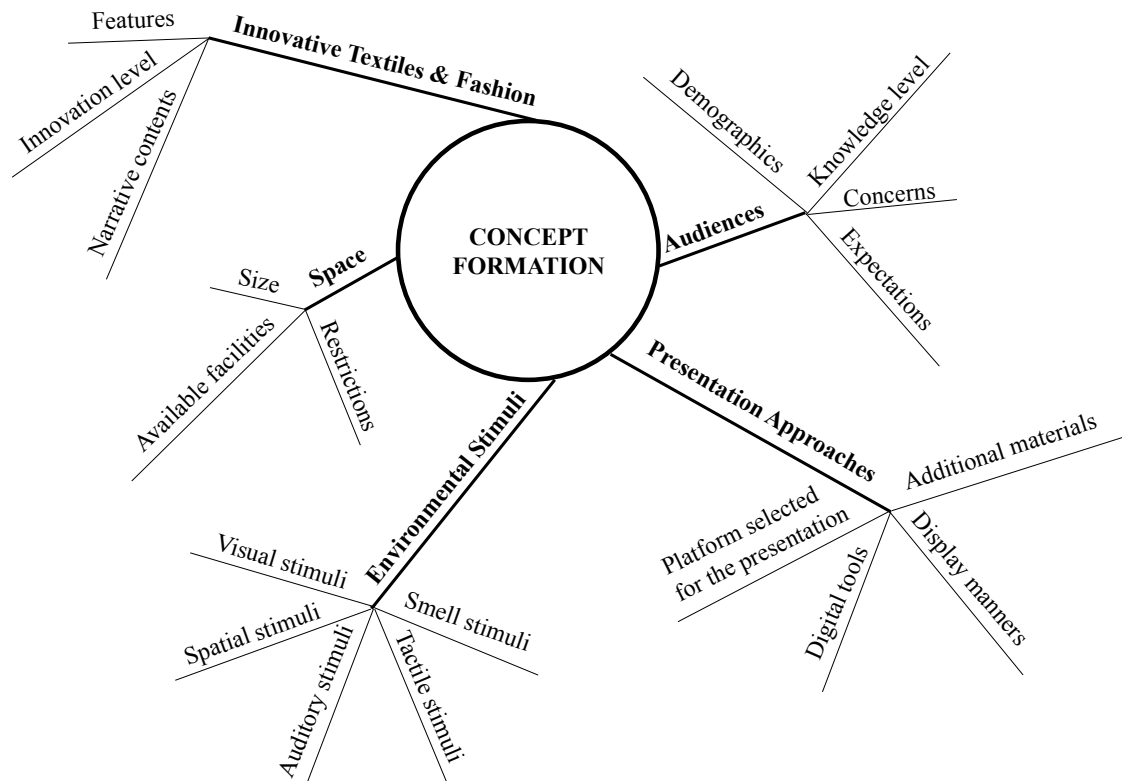


Figure 4-31: Concept Formation Map

#### **4.3.1.1 Investigation of Innovative Textiles and Fashion**

The critical points of the digital merchandising concept formation can start from the research on textile and fashion features that can be the highlight and the narrative of the merchandising design. The methods to measure the innovative textiles and fashion's innovation level to has been stated in Chapter 2.2.2.1 (Table 2-7), which can be judged from four aspects, including a) whether the textiles and fashion is created with creative thinking such as new materials, or improved the existing production process; b) whether the textiles and fashion will open a new market and have sales; c) whether the textiles and fashion or its production technology has patented or applied a trademark; and d) whether the overall performance of the firm that owns the textiles and fashion or their production technology improved. Once the measured textiles and fashion had been judged that meet one or more of the mentioned requirements, it could be regarded as a kind of innovative textile and fashion item.

The features of the textiles and fashion also implied influence on other formation perspectives, including the selection of the environmental stimuli, visual presentation, and the allocation of the space. The features of the innovative textiles and fashion can be examined from a) new improvements of the textiles and fashion (e.g., unique silhouette, unusual colour, special textile texture); b) employing new production techniques or new materials to create a novel textiles/fashion or increase the performance of the existing textiles and fashion; c) applying with novel design method that developed the efficiency of the design process or production process and d) the new developed innovative textiles and fashion meet the new demand of the market. The innovative textiles and fashion may include

one or more innovative points, each point can be the inspiration and the starting point for the narrative of the merchandising (Figure 4-32).

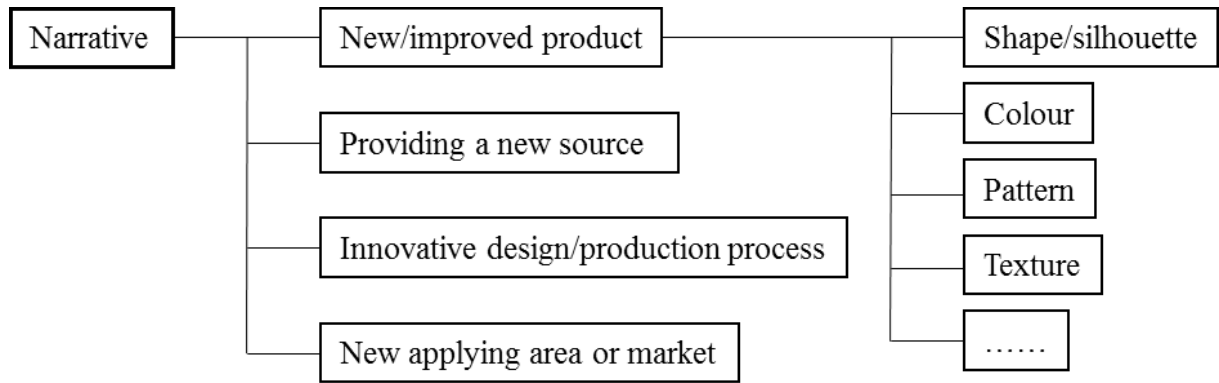


Figure 4-32: Ways for Digital Visual Merchandising Narrative

#### 4.3.1.2 Investigation of Audiences

Two parts can be processed to investigate the target audiences, including the demographic investigation of the target audiences and the psychological investigation of the target audiences. Demographics about the audiences include the information about the age, gender, income level, knowledge level and occupation. Psychological information is related to the issues concerned by the audiences (i.e., the audience's interests, lifestyles) and expectations to the promoted innovative textiles and fashion. The aesthetical preference and the cultural background may affect the audiences from a psychological perspective that may cause emotional response and cognition to the textiles and fashion. Comparing to the investigation of audience demographics, the results of the investigation of the audiences' psychology may have more profound effects on the selection of the presentation approaches and the design plan of the environmental stimuli.

#### **4.3.1.3 Field Investigation of the Designing Space**

For digital visual merchandising design, the field investigation of the space may divide upon the offline and online formats, which refer to the investigation of physical space and virtual space, respectively. Two main perspectives should be investigated that are available facilities and restrictions to the space. The available facilities refer to both hardware and software facilities. The hardware facilities are related to the size of the space and available presentation tools, including the fixtures, lighting tools, electronic equipment (e.g., projector), and printed materials for the promotional purpose (e.g., signing, brochure). The software facilities are related to human resources and the budget for the merchandising design. The human resources are the available staff for the whole design process and their abilities and skills for the specified design work. The budget of the merchandising design may affect the final performance of the design. The investigation of the space directly affects the space layout design and the selection of the presentation approaches. The presentation approaches are usually chosen from the available facilities and should not violate the specified space restriction rules.

#### **4.3.1.4 Proposal of Presentation Approaches**

The presentation approaches should be confirmed in the concept formation stage. Typical presentation approaches cover the perspectives of the presentation platform selection, available digital tools, display manners and additional materials for the merchandising presentation. The merchandising designer should decide which platform/format will be employed for the design at the first step. The merchandising design can be conducted in

either offline or online format. Offline and online are two formats to present the innovative textiles and fashion, which can be chosen based on the promotional purpose, the characteristics of the presented textiles and fashion, the visiting preferences of the audiences and the digital technologies employed for the presentation. For innovative textiles and fashion, offline design can be decided by the product's commercialisation. If the textiles or fashion do not release in the market, some special events may be proper for the merchandising design such as the exhibition and fair. Once the product has been introduced in the market, the pop-up store and showroom may also be the choices for promotion. This format is especially efficient and helpful when the textiles and fashion are in complex structures and a deeper cognition may be acquired after touching the textiles and fashion. Offline digital visual merchandising may quickly draw attention and form a popular effect within a certain range of people (i.e., professionals in the industry). In this case, the digital tools like video will play a supporting role to help present the information such as design concept, production principle in a more attractive way

The online design is usually completed through the website or other digital terminals so that all information will be presented digitally. The advantages of the online digital visual merchandising are a) less limitation in viewing that audience can check it anytime and anywhere if right technology is available; and b) the presented information can be provided over time even the special event ended, which is benefit to the brand's long-term developments. For online digital visual merchandising design, as the interactivity between the presented textiles or fashion and audiences is indirect, the performance of the digital visual merchandising and the cognition to the innovative textile and fashion are deeply rely

on the presentation approaches (e.g., visual design and employed technology). It is important for designer elaborate the information as clearly as possible with the employed digital tools.

Commonly, digital tools can be employed for innovative textiles and fashion include the image, video, eBook, interactive installation. The selection of digital tools has impacts on the performance of the merchandising design. Image and video are two digital tools frequently used that can be applied in most textiles and fashion, because they are compatible with presenting many different merchandising themes. The display manners depend on the choices of the digital tools, design contents and design styles (i.e., graphic design). All these three perspectives may affect the efficiency of information delivery. Graphic design is critical to the performance of the presentation, especially for online cases. The style and the convenience of the graphic design also affect the information delivery. The additional materials are another aspect that should be taken into consideration in the concept formation stage, which are the information about the innovative textiles and fashion in text format that act as the supplementary for the graphic/visual presentation.

#### **4.3.1.5 Environmental Stimuli Design**

Environmental stimuli are essential to arouse the emotional response and helpful to the cognition of innovative textiles and fashion. Regarding the different presentation approaches, the stimuli can create the effects in visual, spatial, auditory, tactile, and smell. For digital visual merchandising, visual stimuli are the primary stimulus in both offline and online merchandising presentation. Spatial stimuli are related to layout design and visual complexity. Usually, the layout of the merchandising should be wide enough to avoid



congestion and high visual complexity. Auditory stimuli and smell stimuli may supplement to the visual stimuli and trigger more durable emotional responses and deeper cognition to the innovative textiles and fashion. Regarding the properties of textiles and fashion, tactile stimuli are efficient for demonstrating the perspectives in textile textures, textile structure, and garment structure.

### **4.3.2 Layout Design**

The layout design is related to space allocation, visiting path flow (offline design) and eye movement path (online design). For digital visual merchandising, space may vary to the physical space or virtual space in offline and online cases, respectively. The designer should complete the coordination and the mapping of the innovative textiles and environmental stimuli in layout design progress.

#### **4.3.2.1 Workflow of Layout Design Formation**

The layout design can be formed and carried out with the following seven-step workflow (Figure 4-33). In the process of concept formation, the investigation of innovative textiles and fashion, study on the audiences, field study on the space, plan for environmental stimuli and presentation approaches have been completed. The merchandising format in offline or online format has been decided as well. Based on the investigation results, the innovative textiles and fashion for the display will be selected. The coordination of the selected innovative textiles and fashion will be conducted accordingly. There are four methods customarily used for the coordination, which coordinate the textiles and fashion a) by their end-use; b) by the fabrication technique; c) by the style; and d) by the colour.

With the coordinated textiles and fashion group, the layout style and the format need to be confirmed. Three most commonly used layout formats referred from the traditional visual merchandising, grid format, loop format and freestyle format, are applicable in the display of innovative textiles and fashion in offline designs. For online design cases, the layout methods can be studied from the graphic design layout. When deciding the layout format, the factors of visiting path flow and eye movement should be considered for offline and online designs, respectively.

According to the implementation results, loop format may be the most applicable one for display innovative textiles and fashion that takes the advantages of a) the textiles and fashion can be placed with a clear path; b) space can be utilised effectively, and proper space and distance can be reserved for textiles or fashion; c) audiences will be easy to recognise and follow up the designed visiting path/eye movement path, which will be efficient in the information delivery; and d) it is easier to form the memory of the displayed textiles and fashion that benefit in arousing the emotional responses and forming cognition.

With the confirmed layout style and format, a tentative layout will be formed in the fourth step. The fifth step is to map the initially coordinated textiles, fashion and environmental stimuli in the space according to the layout plan. The design should be reviewed and adjusted based on the actual display results before the layout design finally confirmed. If the design is reasonable and following the target audience's visiting behaviours, the layout can be finalised.

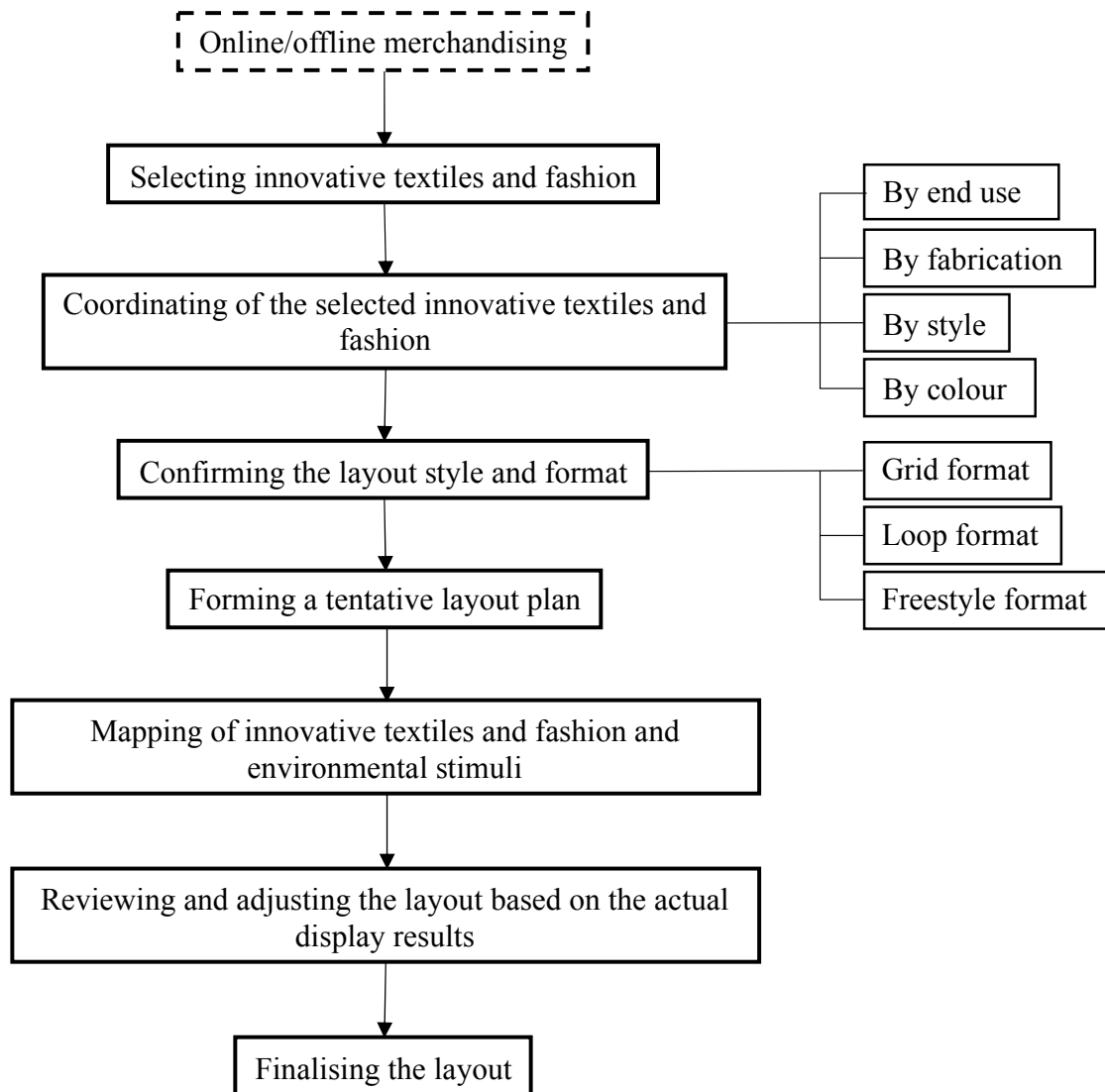


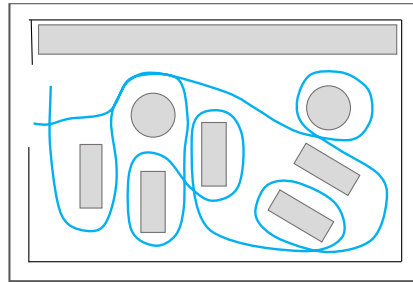
Figure 4-33: Workflow of Digital Visual Merchandising Layout Design



- Signing and graphics can provide visual cues to lead the audiences along with a set of pathways.

Freestyle

Layout



Design

Contexts

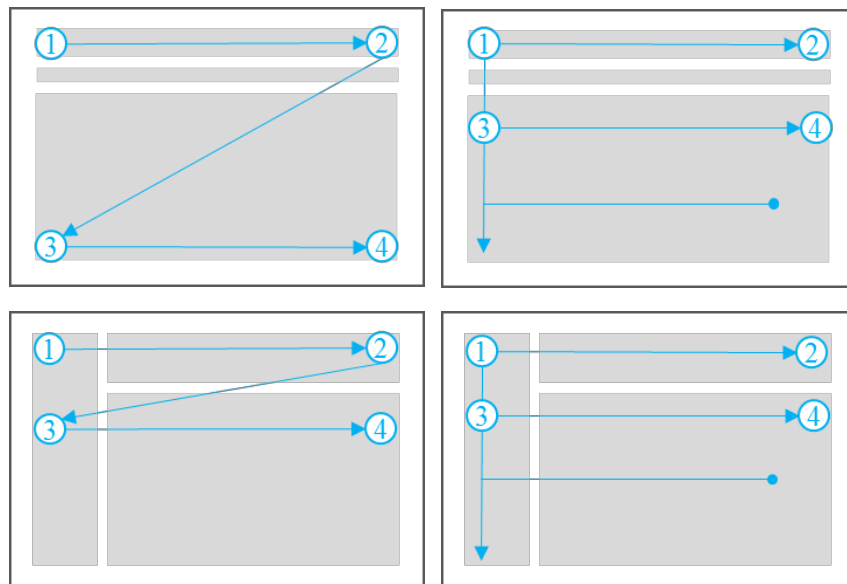
- This format is normally used in upscale, speciality, and boutique settings.
- It can be applied to present textiles and fashion in vigorous artistic or dramatic style, such as handcrafted, designer-made, in one-of-a-kind fabrications.
- The textiles and fashion may intersperse in the space or be arranged in a number of exciting formations to encourage browsing.
- Enough room should be provided and allow traffic to flow smoothly.

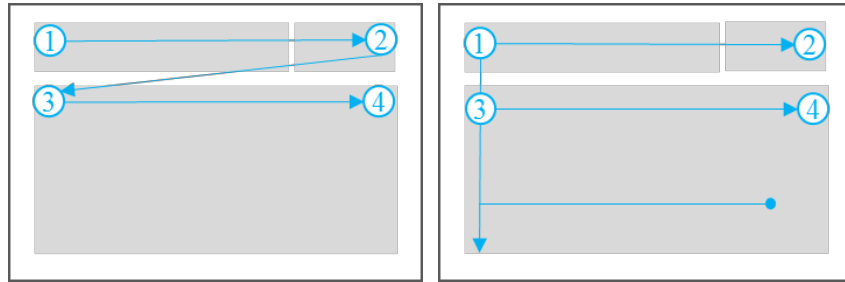
## ONLINE DESIGN

(Blue line: Eye movement path)

Layout

Formats





Design Contexts	<ul style="list-style-type: none"> <li>- The website page divided into three parts is the basic format for graphic design and can be further subdivided. The amount of divided page segments depends on the visual elements for the design.</li> <li>- Usually, the visual elements include the event title, key visual (including captions) and the text description.</li> <li>- For most people, the browsing behaviours reflecting on the eye movement path present in “F” and “Z” shapes, which are mostly used for online interface layouts.</li> <li>- Display the visual elements with the order labelled in the pictures can lead the audiences to pay attention primary information showed in the page.</li> </ul>
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### 4.3.3 Ambient Condition

As stated in the section of concept formation, in the digital visual merchandising design, environmental stimuli are closely connected to the created ambient condition. In this section, five perspectives affecting the performance of ambition condition are summarised from the human body senses that may be impacted by the external environments. They are visual stimuli, spatial stimuli, auditory stimuli, tactile stimuli, and smell stimuli. These stimuli may arouse audiences’ emotional responses and affect the cognition to the innovative textiles and fashion. Typically, they are connected and may be influenced by each other when presented with different approaches.

#### **4.3.3.1 Ambient Condition by Visual Stimuli**

The visual stimuli can be created and will be altered by the different colour schemes, the appearances the innovative textiles and fashion (shape/silhouette, textures, and details of the textiles/fashion), and effects presented by the presentation approaches.

##### **1) Colour Scheme**

According to the visual merchandising theory studied in Chapter 2, it has been found that there are many ways to coordinate colours in eye-pleasing arrangements or develop a colour scheme. For digital visual merchandising design presenting innovative textiles and fashion, the colour scheme may develop based on a) representative colours of the brand or designer's classical works; and b) the colours extracted from the grouped textiles/fashion. In working procedures, some guidelines can be referred to:

- Dividing the colours of innovative textile or fashion into groups, according to their colour intensity. There are seven common colour groups (i.e., bright, pastels, mid-tone, jewel-tone, muted/dusty, earth-tone, and neutral) can be the principles for the colour grouping. This step can be completed in the concept formation stage and assist for the selection of innovative textiles and fashion;
- Combining the colours with each group to create colour schemes. Colours of the same intensity can be blended and be more comfortable to create a harmonious colour effect;
- Avoiding combining the colour from various groups together, except the colours in a neutral colour group.

When applying the created colour scheme, the coordination and the organisation of the colour scheme should be sufficient in order to create an enduring visual effect. The representative colours or the extracted colours should be further coordinated and present with a colour story. Typically, the application principles should follow the basic colour schemes or colour harmonies developed from the variations of the colour wheel, including, complementary scheme, split-complementary scheme, double-complementary scheme, triadic scheme, analogous scheme, and monochromatic scheme. There are some practical suggestions for the application of colour scheme in the digital visual merchandising designs as follows:

- Giving a sequence to the colours and their occurrence frequency. The dominant colour may be the representative colours and the extracted colours;
- Keeping the visual consistency when applying the colour scheme in all presentation approaches;
- Combining the colour scheme with the developed layout design, so that the audiences' attention can be drawn from one area to another as planned.

## **2) Appearance of Innovative Textiles and Fashion**

The appearances of innovative textiles and fashion include the shape/silhouette, the textures, and the details of the textiles/fashion. The influence created by visual stimuli may depend on the audiences' background. Audiences with different cultural backgrounds, aesthetical values, personal values, lifestyles may have different perceptions of the products' appearance. Attributes in visual aesthetics may also affect the perception of the product's appearance, which should be paid attention in digital merchandising display. These attributes



are audience's affection responses (Seva and Helander, 2009), beauty perception (T. Kim, Jung, and Im, 2014), apparent usability (Mugge and Schoormans, 2012), appealing of a product appearance (J. Park, Han, Kim, Cho, and Park, 2013) and audience's tendency of experience (Ding, Guo, Hu, and Cao, 2017).

The procedures to classify and coordinate the appearance of the innovative textiles and fashion with different properties are similar to the process of colour scheme creation. When investigating the features of textiles and fashion in the concept formation step, textile/fashion in similar shapes, textures and details can be grouped. With the grouped textiles and fashion, the textiles and fashion can be mapped according to the planned space layout. The visual complexity, rhythm and balance of the displays should be carefully designated to maximise the effects created by visual stimuli.

### **3) Effects Presented by the Presentation Approaches**

The selection of presentation approaches and the visual stimuli created by the employed approaches is the third aspect. The selection range of the presentation approaches includes the digital tools, presentation facilities and lighting. The presentation approaches should be selected to facilitate the presentation performance within the digital visual merchandising design narrative. Table 4-10 presents typical approaches proper for the presentation of innovative textiles and fashion.

Table 4-10: Presentation Approaches Applicable in Digital Visual Merchandising

Categories	Approaches	Design Perspectives
Digital tools	Photo	<p>Photo is one of the most widely used presentation approaches for innovative textiles and fashion presentation. Photos can be used in the design of promotional materials. The selected photo should:</p> <ul style="list-style-type: none"> <li>- Be with a clear theme or reflecting the narrative of the merchandising design;</li> <li>- Reflect the features of innovative textiles and fashion;</li> <li>- Present the overview of the textiles/fashion and equipped with images of side look and details;</li> <li>- Be with high photo resolution and good printing quality (if presented in physical format).</li> </ul>
	Video	<p>The video presents innovative textiles and fashion in a dynamic format. The employed video should:</p> <ul style="list-style-type: none"> <li>- Narrate with a storyline or present in a logic;</li> <li>- Reflect the features of innovative textiles and fashion;</li> <li>- Select the background music for the video carefully, which should follow the narrative of the merchandising design and help present the textiles and fashion;</li> <li>- Ensure the video can be played smoothly and in high resolution.</li> </ul>
Presentation facilities	Installation	<p>Textiles and fashion can be reshaped into installation to present the item artistically or dramatically. The principle to present the textiles and fashion in installation format is to be under the merchandising theme.</p>

	Fixture	<p>Fixture can be used to display innovative textiles and fashion including:</p> <ul style="list-style-type: none"> <li>- Mannequin: It is proper for presenting innovative fashion. The body figure, colour, makeup of the mannequin should be suitable for the presented fashion item;</li> <li>- Hanger: The shape of the hanger for presenting the textiles or fashion should be selected and fit for the displaying purposes;</li> <li>- Table: The textile piece and fashion will be displayed on the table depending on the textile and fashion properties;</li> <li>- Wall: Textiles and fashion can be fixed or hanged on the wall to create a gallery display.</li> </ul>
Lighting	--	<p>Lighting at the site emotionally affect the visual stimuli in offline digital visual merchandising design. The light should be set under the merchandising narrative but guarantee the details of the textiles and fashion can be viewed clearly.</p>

#### 4.3.3.2 Ambient Condition by Spatial Stimuli

Spatial stimuli are related to the layout design. Regularly, the layouts planned to display the innovative and fashion in a physical space or a virtual space should have a proper distance between the items and audiences and leave enough space for audiences to pass through to avoid them to feel any pressures when viewing the displays. Thus, the visual stimuli like graphics should be displayed at a medium visual complexity level. The physical comfort may allow the audiences to visit the innovative textiles or fashion better and are willing to stay in the space for a longer time. However, in some cases, innovative textiles or fashion may be

presented in artistic or dramatic ways in order to arouse the audience's individual responses or personal cultural resonance. In this context, the textiles or fashion will be displayed in either low density or high density, so that the perception from the outside environment may cause psychological reactions to the digital visual merchandising and further impact the cognition to the innovative textiles and fashion.

#### **4.3.3.3 Ambient Condition by Auditory Stimuli**

The forms of the auditory stimuli are various. It can be the background music played at the offline site. It can also be the sound/music embedded in the digital presentations (e.g., video, animation). It may also be the sounds generated by the surroundings. In digital visual merchandising for innovative textiles and fashion, the auditory stimuli often present within the first two forms. For both offline and online digital visual merchandising designs, auditory stimuli are useful in creating immersive effects and be positive to create emotional responses and add more memory points.

The music or the sound acting as the auditory stimuli should support the narrative of the merchandising design and be an assistant to elaborate on the features of the innovative textiles and fashion. The setting of the auditory stimuli should be designed based on the merchandising design contents. If the contents are complex, such as including the designs from various designers or brands, it would be difficult to use one music to fit all textile and fashion designs. In this situation, the music should be prepared based on the textile and fashion individually and play within the limited areas. It is better to control the sound volume (e.g., using a headset or play in low volume) so that the sounds/music for different designs

will not interfere with each other. If the merchandising is designed for a specific textile or fashion project, one sound/music might be able to apply in all presentations to strengthen the auditory memory.

#### **4.3.3.4 Ambient Condition by Tactile Stimuli**

Tactile stimuli are proper for textiles and fashion in offline digital visual merchandising, especially in the cases that the textiles with unique textures/materials, developed with new textile structure, and can interact with audiences (e.g., smart textiles). It is better to set an experiencing zone for audiences to touch the textiles or fashion when visiting the display. For example, the textiles samples can be prepared in swatches so that the audiences can touch the samples in the zone freely instead of touching the displayed textile or fashion works. With the tactile stimuli, the textile characteristics will be more natural to understand and become more memorable. Moreover, the interactivity level will be increased through the touching experience.

#### **4.3.3.5 Ambient Condition by Smell Stimuli**

Smell stimuli are not very common in the digital visual merchandising, even for offline cases. The taste of smell is regarded as an individual thing. Different audiences may react differently to smells. It also hard to find a kind of smell being liked by everyone. The smell stimuli may set in a scenario that the brand owned the presented textiles and fashion also has perfume as peripheral product. If the smell stimuli are planned to be set at the site, it is better to choose a typical brand smell, which might be easier to be accepted by most audiences.

#### **4.3.4 Interactivity Level**

##### **4.3.4.1 Impacts Generated through Interactivity**

Interactive effects in digital visual merchandising reflect on two levels. The first level is direct and explicit, which is about the social connection consisting of the interaction between the promoted innovative textiles and fashion, the presence online, the connection between other audiences and more. The second level is implicit that can be a kind of promotional effect beyond the innovative textiles and fashion themselves, which may be generated toward the interactive activities and the audiences' engagement. The effects created in the interactive activities through the digital visual merchandising can be elaborated in perspectives of:

- The interactive experience created in the browsing process of the digital visual merchandising;
- Establishing an interactive relationship between the digital visual merchandising design and audiences;
- Cognition and promotion of the innovative textiles and fashion through the merchandising showcase and the introduction of the textiles and fashion's application fields;
- Promotional effects on the designer/brand that developed the presented innovative textiles and fashion;
- Promotion and contribution to the development of the fashion and textile industry.

The interactivity in the first level is highly relying on the performance of digital visual merchandising presentation and its design effects. These effects are related to the choices of presentation approaches and various effects created by the environmental stimuli. The effects in the second level of interactivity are complex, challenging to measure and cannot be guaranteed to achieve. However, it may be obtained by managing the interactivity level in the first level. High interactivity may have positive effects on reaching the second level. Moreover, high interactivity may create greater satisfaction, higher effectiveness, and high efficiency. Satisfaction may positively affect the attitude to innovative textiles and fashion. Thus, greater satisfaction, higher effectiveness and higher efficiency may have positive impacts on the cognition to the value of innovative textiles and fashion.

#### **4.3.4.2 Manipulation of Controlling Interactivity Level**

In digital visual merchandising designs, high interactivity level can be achieved through the improvements of the presentation/display manners. The interactivity level can be manipulated and controlled. As shown in Table 4-11, low interactivity level can be achieved by providing the information about the innovative textiles and fashion. The level can be increased by adding more interactivity types. The elements included in the lower level are automatically covered by the higher level. The details of interactive design in offline and online digital visual merchandising designs are presented in Table 4-12 and Table 4-13.

Table 4-11: Manipulation and Controlled Variables of Interactivity Level

<b>Interactivity Levels</b>	<b>Categories</b>	<b>Type of Interactivity</b>	<b>Controlled Variables</b>
Low	- Description of innovative textiles and fashion	- User-document interactivity	- Control of rhythm - Control of sequence
Medium	- ... - Supplementary information (e.g., FAQ) - Searching path - Feedback to audiences	- ... - User-system interactivity - Machine interactivity	- ... - Control of media - Control of variables - Control of transaction
High	- ... - Registration in the brand - Special events (e.g., forum, seminar) - Discussion with designer(s) - Instant chat	- ... - User-user interactivity - Person interactivity	- ... - Control of simulation

*Note: “...” denotes elements that are same as those in the lower level.*



Table 4-12: Details about Interactive Design in Offline Digital Visual Merchandising

Contents	Manners of Presentation		Descriptions
Introduction of innovative textiles and fashion	Photos, videos, animations, texts	Backdrop, banner, poster etc.	To present the brand introduction and other basic information at the site to build the universal brand value and understand the displayed innovative textiles and fashion quickly
Presentation of the innovative textiles and fashion	Display methods	Style of the visual presentation	To decide the style of the visual presentation, which is about the narrative/theme of the merchandising design
		Employment of the tool	To decide what physical tools and digital tools will be employed to present the innovative textiles and fashion (e.g., wearing on model, mannequin, display on a table)
	Detail view	Distance between the items and audiences	If the distance between the displaying items (i.e., innovative textiles and fashion) and audiences is proper so that the details of the item can be checked easily
	Colour scheme	Colour coordination	To decide: <ul style="list-style-type: none"> <li>- How the innovative textiles and fashion will be coordinated for the display</li> <li>- Once the innovative textile piece and fashion has more than one colour, if all the colours will be displayed</li> </ul>

	Lighting	Impacts by the light setting	If the light setting affected the colour presentation, such as if the textile colour changed or not
	Environmental setting	Background selection	If the surrounding and the environment at the site need to be renovated
	Recommendation	Mix and match	Mix and match suggestions for audiences
		Application example	Examples of the application of the innovative textiles and fashion
	Supplementary information	Purchasing information	To show the purchasing information at the site (e.g., purchasing channels, price)
		Detailing descriptions	To present the details of innovative textiles and fashion for audiences to read and to know before making further actions (e.g., design concept, material properties, design details and care instruction)
		Stock availability	To show the inventory level of the innovative textiles and fashion (if purchasable)
Contact	--	--	To list out the contact information on the printed materials, in case audiences have any questions to the brand, innovative textiles and fashion

Table 4-13: Details about Interactive Design in Online Digital Visual Merchandising

Contents	Manners of Presentation		Descriptions
Homepage	Photos or videos		To show the overview of the innovative textiles and fashion, and related promotional event(s)
Page of brand introduction	Photos, videos, animations, texts		To demonstrate the brand image and the basic information in order to strengthen the audiences' impression and build the common brand value
Presentation of the innovative textiles and fashion	Types of view	Front/back view	To show the innovative textiles and fashion from different perspectives, such as front look, side look, back look and detail look by multiple means like photos and videos with or without the aid of mannequin, virtual model or real model. (Alternatively, it also refers to the image nature of product-focus or fashion-show)
	Display methods	Style of the visual presentation	To decide the style of the visual presentation: <ul style="list-style-type: none"> <li>- If the image/video for the textile and fashion presentation is presented in the scene or with a story</li> <li>- If the image/video for the textile and fashion presentation is single presented the textile or fashion item (e.g., publicity photo of the item in a blank background)</li> </ul>
		Employment of the tool	To decide if the innovative textiles and fashion will be presented with a tool

		(e.g., wearing on model, mannequin, display on a table)
Detail view	Zoom-in/out	To have an option to view the innovative textiles and fashion in the shorter or longer distance with adjustable zooming scale
	Texture display	To provide with a high-resolution photo of the textile textures. It should be as detailed as possible to check the fabric woven/knitted patterns in yarn level
Colour presentation	Colour selection	To let the audiences to view all the available colours of the innovative textiles and fashion conveniently and effectively, such as check the colour swatches by putting the mouse on a particular button; or the information in detailing description include colour availability
	Illuminate selection	To allow to choose from available light sources such as daylight, tungsten light and fluorescent lamp
	Background selection	To choose from the available backgrounds with different solid colours or different scenes
Swatch	Shading and highlighting	To demonstrate the clothing item with available colours and can be chosen
Recommendation	Mix and match	Suggestions of mix and match to audiences
	Application example	Examples of the application of the innovative textiles and fashion

	Supplementary information	Purchasing information	To show the purchasing information within the website/digital platform (e.g., purchasing function, purchasing channels, price)
		Detailing descriptions	To provide the details of innovative textiles and fashion for audiences to read and to know before making further actions (e.g., design concept, material properties, design details and care instruction)
		Size display	To enable to see the try-on effects of different sizes using an adjustable mannequin or a virtual body that can change by inputting the body measurements
		Stock availability	To show the inventory level of the innovative textiles and fashion (if purchasable)
Contact	--	--	To list out the contact methods on the website/digital platform, in case audiences have any questions to the brand, innovative textiles and fashion

#### **4.3.5 Visual Complexity Level**

With the literature review of previous studies, visual complexity level should be balanced at a medium level to keep a medium arousal level. The audiences will not feel too boring/exciting or relaxing/anxiety when the digital visual merchandising's visual complexity level maintained at a medium level in either telic or para-telic scenarios. The complexity levels may decide by the complexity of design contents, the presentation approaches and interactive forms. These three aspects are interrelated and present as a complex concept. In this section, the design factor of visual complexity in digital visual merchandising has been discussed and interpreted.

##### **4.3.5.1 Visual Complexity Controlled by Design Contents**

The level of visual complexity is affected by the complexity of the contents of the digital visual merchandising. More contents may need more presentation approaches to show the information in different forms. The level of visual complexity may increase once the contents cover a wide range of information or be presented by a variety of approaches. Regarding the digital visual merchandising for innovative textiles and fashion, the control of the visual complexity variables can be processed from three perspectives a) to balance and control the contents that presented in the merchandising design; b) to balance and control the presented innovative textiles and fashion in terms of the design style and visual elements; and c) to balance and control the presentation approaches employed in the digital visual merchandising design.

The visual complexity can be controlled by extracting the symbolic elements from the presented textiles and fashion and keeping applying the extracted elements in all presentations in the merchandising design. The details about the mentioned three perspectives have been discussed and presented in Table 4-14.

Table 4-14: Controlled Variables of Visual Complexity Level

<b>Perspectives</b>	<b>Descriptions</b>
Contents of digital visual merchandising design	<p>The content plan of the merchandising design that is related to:</p> <ul style="list-style-type: none"> <li>- The category of innovative textiles and fashion</li> <li>- The style of the presented textiles and fashion</li> <li>- The amount of the designers/collections/works covered in the merchandising</li> </ul>
Design style and visual elements in innovative textiles and fashion	<p>The innovative textile and fashion may vary in terms of:</p> <ul style="list-style-type: none"> <li>- Design style (i.e., colour, pattern, texture, shape/silhouette)</li> <li>- Materials</li> <li>- Size</li> </ul>
Presentation approaches	<p>The design of presentation approaches is related to:</p> <ul style="list-style-type: none"> <li>- Design style</li> <li>- Forms for the presentation (e.g., installation)</li> </ul>

#### **4.3.5.2 Visual Complexity Controlled by Presentation Approaches**

The employment of presentation approaches is based on the contents planning to present in the digital visual merchandising. More contents in graphics and information may need to employ more approaches to present at the offline site and online platform. The typical approaches employed for presenting innovative textiles and fashion in digital visual

merchandising include a) photo; b) video; c) promotional materials/documentaries in both printed or digital formats; and d) physical display.

The visual complexity of presentation approaches can be controlled by selecting the applicative approaches. Moreover, the design of the selected approaches should be presented in a unified design style. Usually, it can be achieved by the following steps:

- Extracting design elements from the textiles and fashion;
- Designing and setting a key visual; and
- Applying the extracted design elements in almost/all presentation tools to strengthen the memory.

#### **4.3.5.3 Visual Complexity Controlled by Interactive Forms**

The interactivity is linked to visual complexity because of its connection with the presentation approaches set for the digital visual merchandising. Two kinds of interactivities can be achieved from the digital visual merchandising that are the interactions between the presented textiles and fashion, and the promotional impacts discussed in Chapter 4.3.4.1. The visual complexity level can be controlled by:

- Carefully selecting and setting the types of interactivity created by the different presentation approaches;
- Keeping the design consistency in different presentation forms and setting connections between the different interactive activities;
- Designing the message delivered in the interactivity intentionally, especially in the immediacy of the interactions.



#### **4.3.6 The Relevance of the Design Factors**

The framework showing the relevance of the design matters and design factors has been developed based on the results of offline and online digital visual merchandising implementations and the interpretation of each design factor. Based on the discussions and analysing findings from the implementations, the relevance between the design matters and design factors in the digital visual merchandising design has been confirmed and demonstrated in Figure 4-34. As shown in the figure, in digital visual merchandising design, the design matters are correlated with each other, and each design factor is associated with several design matters. Digital visual merchandising design is formed based on the innovation and features of the displayed innovative textiles and fashion, which aims to highlight the characteristics of the textiles/fashion to help audiences cognise textiles/fashion and have an interaction between the textiles/fashion.

Three design factors of concept formation, ambient condition and visual complexity are related to all four design matters. The design concept is formed based on the investigation of innovative textiles and fashion including the background of fashion/textile brand and designer (institutional advocacy and subject matter advocacy). The study of the target audiences (audience advocacy) is related to digital visual merchandising design scheme (design advocacy) that is about the employment of environmental stimuli, visual presentation, the space allocation. Ambient condition is about the atmosphere creation, which may be presented through visual stimuli, auditory stimuli, tactile stimuli, spatial stimuli, and smell stimuli. The nature of the innovative textiles and fashion, brand mission, and audience behaviours, (institutional advocacy, subject matter advocacy, audience advocacy) are the

basis of the ambient design. The employed environmental stimuli and visual presentation approaches (design advocacy) affect the performance of the ambient condition. Details related to the setting of the ambient condition have been elaborated in Chapter 4.3.3. The visual complexity level is affected by the complexity of the digital visual merchandising design contents (institutional advocacy and subject matter advocacy), the intensity of the merchandise allocated in the space, the richness of the environmental stimuli, the choices of visual presentation approaches (design advocacy), and the formats of interactivity (audience advocacy). Details about the controlling variables in digital visual merchandising have been discussed in Chapter 4.3.5.

The layout design has related the perspectives including the allocation of the space, the allocation of the innovative textiles and fashion (subject matter advocacy) and environmental stimuli (design advocacy), and the viewing method (for online design) / audience's path flow (for offline design) (audience advocacy). Interactivity level is affected by the digital visual merchandising contents regarding the presented innovative textiles and fashion and additional information provided to the audiences (subject matter advocacy). The selection of visual presentation approaches and environmental stimuli (design advocacy), and how the audiences participated in the merchandising design may affect the overall satisfaction of the audience experience (audience advocacy) as well.

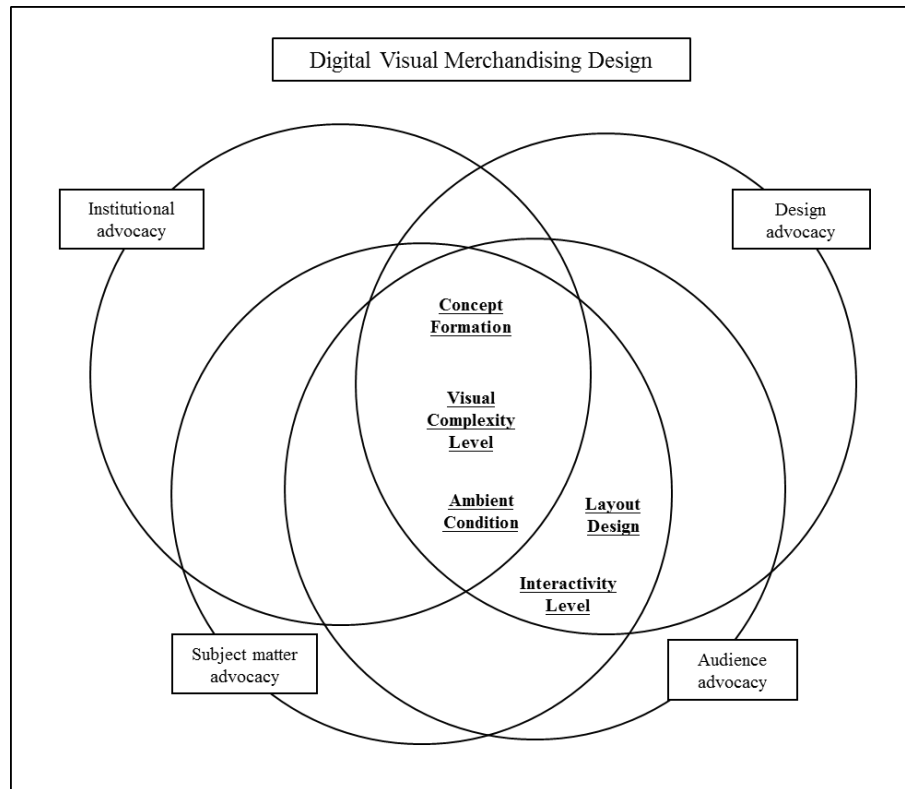


Figure 4-34: Relevance between the Digital Visual Merchandising Design Matters and Identified Design Factors

#### 4.4 Summary

Representative implementations in offline and online formats carried out during the research study have been analysed to verify the proposed hypotheses about digital visual merchandising design model. Two offline implementations about innovative textiles and fashion were applied by employing digital tools to facilitate the presentation performance. One online exhibition about innovative knitting textiles and fashion was conducted as online implementations. Similarities and differences of the mentioned offline and online digital visual merchandising implementations have been compared and contrasted according to the

identified design factors in order to help interpret the design factors and finalise the grounded digital visual merchandising design model.

The design contexts of the five identified design factors involved in the digital visual merchandising designs have been interpreted. The framework of the design factors has been created to show the relevance of each factor. A map has been developed to help form the digital visual merchandising concept. Five aspects including a) investigation of innovative textiles and fashion; b) investigation of target audiences; c) field study of the space; d) selection of presentation approaches; and e) setting of environmental stimuli has been elaborated, and the items under each aspect have been further elaborated upon. The workflow of forming a layout design has been demonstrated. Practical layout formats and the design contexts in applying the layout format into offline and online design cases have been explained. The stimuli affecting the ambient condition have been discussed from five perspectives, including visual stimuli, spatial stimuli, auditory stimuli, tactile stimuli and smell stimuli. Moreover, the effects of interactivity created through the digital visual merchandising have been presented, and the manipulation of interactivity has been discussed as well. Thus, the variables should be controlled in digital visual merchandising design while affecting the visual complexity have been interpreted in terms of design contents, presentation approaches and interactive forms.

## **CHAPTER 5      CONCLUSION**

### **5.1 Introduction**

This study was undertaken with the objectives of identifying the design factors in digital visual merchandising design and establishing a model to guide digital visual merchandising implementations to promote innovative textiles and fashion. The design factors and the model were identified and built by a) completing theoretical study and empirical research on digital visual merchandising and innovative textiles and fashion in both offline and online formats; b) carrying out document reviews and on-site observations to collect raw data; c) identifying the design factors of digital visual merchandising design by coding the collected data; d) proposing a conceptual model with the identified design factors; e) verifying the proposed model with design implementations and interpreting the design contexts of each design factor; and f) improving and grounding the model based on the verified results.

### **5.2 Grounded Model of Digital Visual Merchandising Design**

With the discussion of the offline and online digital visual merchandising design cases and the interpretations of the design factors, a model of digital visual merchandising design reflecting the roles of design factors in digital visual merchandising design process has been confirmed and demonstrated (Figure 5-1). The grounded model confirmed and divided the design (stimuli) creation process into three phases, which are “concept development”, “scheme design” to “design construction”. The roles of design factors play in the digital

visual merchandising design process have been presented in figure. Different design factor may have a particular emphasis on one design phase. The relationship of the identified design factors and their impacts on the digital visual merchandising design results has been revealed in the grounded model. The variables that can be adjustable through the design factors have been shown in the model in order to be applicable for different innovative textiles and fashion in various design scales.

The factor of concept formation is the basis for the whole digital visual merchandising design. It is critical in the concept development phase, which can be completed from two parts. The first part is about the investigation of the presented innovative textiles and fashion, understanding of the target audiences and field investigation of the space (both offline and online space). Another part is to conduct brainstorming for the selection of effective environmental stimuli and available presentation approaches. Once the initial design concept was formed, it could be set as a tentative design plan to further develop the layout design and ambient condition in the scheme design phase. Based on the design performance in the phases of scheme design and design construction, the concept might be adjusted. In this context, the design concept should be reviewed in the whole design process.

The factors of layout design and ambient condition may be helpful in the scheme design. For the factor of layout design, the textiles/fashion planned to be presented through digital visual merchandising should be coordinated by the end uses, fabrication processes, styles and colours. Then, the layout of the visiting path flow (offline) or eye movement (online) should be designed reasonably. For the factor of ambient condition, usually, it can be set from three

perspectives, including visual stimuli, spatial stimuli and auditory stimuli. The former two perspectives are essential to the design and the later one is optional. Based on the scale and the complexity of the digital visual merchandising design, more stimuli like tactile stimuli and smell stimuli can be added in the offline designs to have more interactivity with the audiences. Similarly, it also needs to conduct reviews on layout design and ambient condition to ensure the efficiency of these two factors in the following design phase.

The impacts by the factors of interactivity level and visual complexity level may reveal in the design construction phase. The levels in interactivity and visual complexity may fluctuate based on the contents of concept formation and the efficiency of the layout design and ambient condition. According to the scale of the digital visual merchandising, the level of interactivity can be adjusted and controlled from low to high by presenting basic information of textiles and fashion in image and text, providing more additional information, providing online information and holding special event. While, the visual complexity level can be controlled from the perspectives of design contents, presentation approaches and interactive forms. Basic information of textiles and fashion and design contents are two necessary variables in interactivity level and visual complexity level. More variables can be optional added based on the design scale.

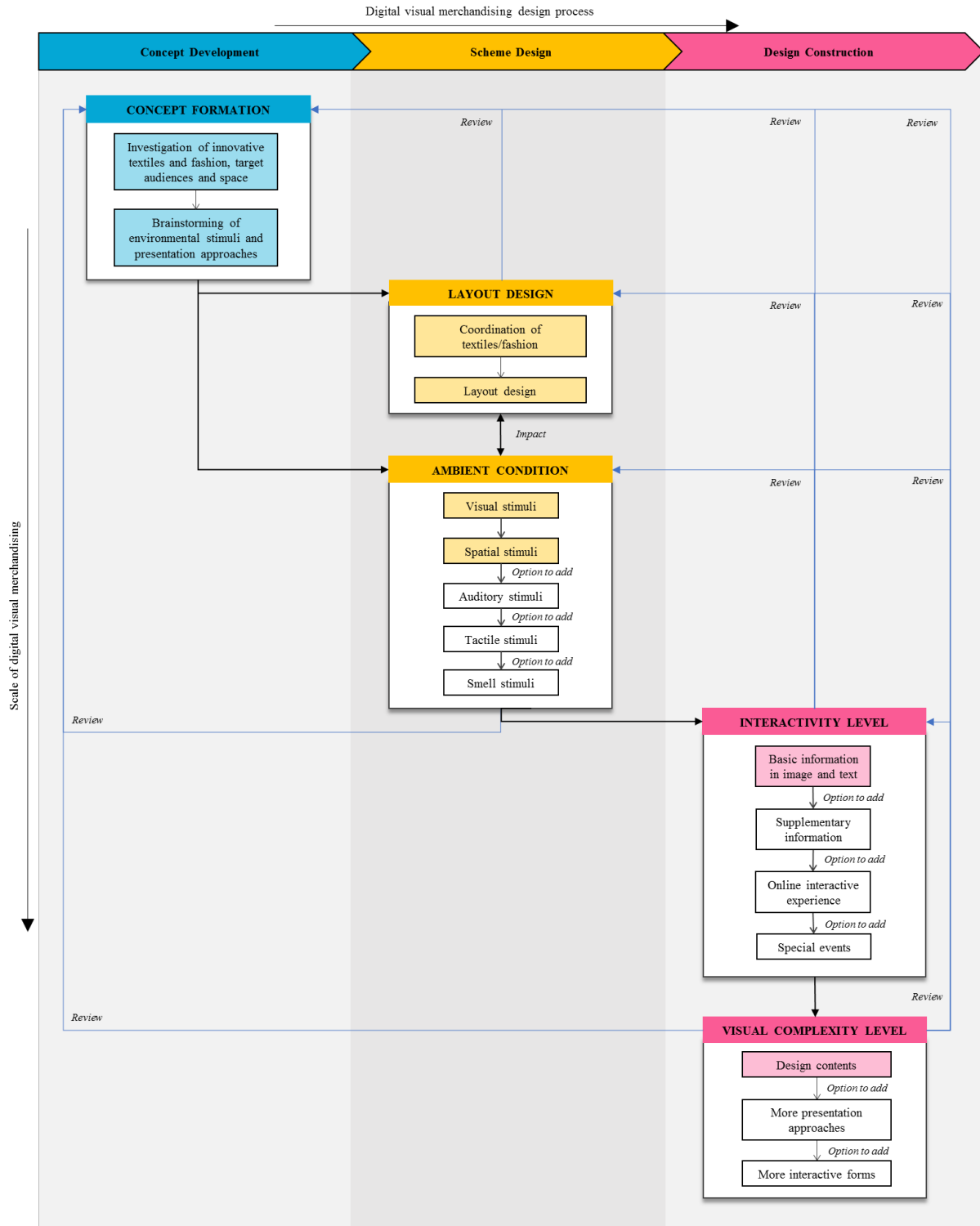


Figure 5-1: Model of Digital Visual Merchandising Design



### 5.3 Conclusion

This research study, a methodology of the digital visual merchandising for promoting innovative textiles and fashion has been developed by referring to the techniques of traditional visual merchandising. Systematic investigation of digital visual merchandising has been conducted from theoretical and empirical perspectives. A model revealing the design factors in digital visual merchandising design has been established, which can be employed to guide the digital visual merchandising design for promoting innovative textiles and fashion. The roles of the identified design factors in digital visual merchandising; and their impacts on the digital visual merchandising design process has been discussed.

Four significant tasks have been completed in the present study, a) theoretical study and empirical research on digital visual merchandising have been completed; b) design matters and design factors of digital visual merchandising have been identified, and the design contexts of each design factor have been interpreted; c) digital visual merchandising implementations specifying to exhibition presentations in offline and online formats have been conducted; and d) a digital visual merchandising design model has been established based on the achieved study work.

Based on the mentioned achievements, the contributions of this research study can be summarised as follows:

- 1) Theoretical study on digital visual merchandising has been completed through the study of merchandising theories, including the design strategies (i.e., design matters, design processes, design factors, design forms and applicable technologies) and performance

affecting factors (i.e., information management and psychological effects). Four design matters have been confirmed and can be the fundamentals of the digital visual merchandising design. It has been found that the lifecycle of the digital visual merchandising is shorter when compared with the traditional visual merchandising due to its digital feature. The design process in engineering design and exhibition design can provide the lessons to confirm the design process of digital visual merchandising. The factors and principles in traditional visual merchandising can be the references to the digital visual merchandising design, especially the factors of colour and layout. Based on the study of visual merchandising design form, the forms of digital visual merchandising have been divided in offline format with digital tools and online format presented in digital platforms. It also has been found that new technologies such as stimulate virtual reality, augmented technology, mediated reality, interactive activities through kinetic technology, immersive technology and digital mannequins may facilitate the digital visual merchandising presentation performance. Through the study of the information management and psychological effects, it has been found that the information delivered through and the contents designed for digital visual merchandising should be carefully planned, which can be decided at the concept development process. The stimuli in the digital visual merchandising should be set by considering psychological effects, which may affect the arousal of emotional responses and the cognitions to the promoted textiles and fashion.

- 2) The characteristics of innovative textiles and fashion have been investigated. The representative innovative textiles and fashion in the market include smart textiles, colour-changing textiles, functional textiles and 3D-printed textiles. A method to

measure the innovation level of textiles and fashion has been provided. Four points have been provided for the measurement, a) if the textiles/fashion has a new feature/property; b) if the production process of the textiles/fashion has been improved; c) if the textiles/fashion has achieved or applying for a patent, trademarks or other intellectual properties; and d) if the newly launched textiles/fashion has achieved excellent marketing performance. The method can be used to detect the innovative textiles and fashion and identify the textile and fashion features for digital visual merchandising.

- 3) Empirical research on the offline and online design cases have been conducted to obtain insights into the visual merchandising and promotional methods presented by the current fashion and textile brands. Comparative analyses have been processed to demonstrate the similarities and differences of the design concepts and presentation approaches employed by fashion brands. It has been found that fashion brands would like to employ offline events to attract loyal consumers and establish the connection between the new target audiences in order to promote the brand and the new collection. The techniques used in offline cases focus on the physical display, aided with videos and dynamic images. More interactivity may help the audiences experience the designs. Thus, most fashion brands or online shopping platform use website as their digital centre to contact with their customers. The website plays the role of an information centre and sometime acts as the shopping centre as well. Both the offline and online cases reflected some problems, such as the weakness in highlighting the information and presenting the pathfinding clear. These problems may affect the efficiency in finding the desired information and products and can be improved through the digital visual merchandising.

- 4) Design matters of institutional advocacy, subject matter advocacy, audience advocacy and design advocacy have been constructed as the fundamentals in digital visual merchandising design and have been employed to identify digital visual merchandising design factors. Five design factors of concept formation, layout design, ambient condition, interactivity level and visual complexity level have identified. Through the identification and the verification progress, the design contexts of each design factor have been formulated. The concept formation can be completed through five perspectives of investigation of innovative textiles and fashion, investigation of the target audiences, field inspection to the design space, proposal of the presentation approaches and environmental design. The workflow of the layout design formation has been provided, and the design contexts of the layout design should be completed through two sections. The first section is the coordination of the presented innovative textiles and fashion. The second section is the design of the visiting path flow or eye movement path in offline and online cases, respectively. The path flow design will be helpful ensure the presented innovative textiles and fashion can be well organised, and the information is efficiently delivered through the digital visual merchandising. The ambient condition can be set through visual stimuli, spatial stimuli, auditory stimuli, tactile stimuli, and smell stimuli. The former two stimuli are essential in the digital visual merchandising, while the rest stimuli can be optional added based on the design contents. The control of the interactivity level and the visual complexity level may affect the performance of the digital visual merchandising. High interactivity level may have positive impacts on creating satisfaction, effectiveness and efficiency. However, it should be balanced

between the visual complexity level, which can be controlled through design contents, presentation approaches and interactive forms.

- 5) Implementations of digital visual merchandising designs in offline and online formats have been conducted based on the proposed conceptual model of digital visual merchandising design in an early stage. The findings through the implementations reveal that the design factors affect the design process. The control of the design factors influences the final performance of the digital visual merchandising design. The employed presentation approaches such as digital pictures, videos may arouse the internal responses easier when the audiences are industrial professional or have textile and fashion background. The implementations provide alternatives for fashion and textile brands to promote their new textiles and fashion through digital visual merchandising with commonly used digital tools (i.e. digital pictures, videos, website). The online implementations play the roles of releasing the information and promote innovative textiles and fashion. Moreover, the online implementations suggest an idea of projecting the physical events to online programmes through video or virtual technology to engage more audiences in the events when the physical event is not available.
- 6) Based on the conducted implementations, a grounded model of digital visual merchandising design has been established to guide the digital visual merchandising design for the promotion of innovative textiles and fashion. The determined model presents the design factors and their adjustments in the digital visual merchandising design in different design scales. The identified design factors have an emphasis on different design phases. Concept formation is critical in the phase of concept development, while layout design and ambient condition are essential for scheme design.

The interactivity level and visual complexity level should be carefully controlled at the design construction phase because they are vital for the final performance of the digital visual merchandising design. Fashion and textile brand can adopt the model to promote their new products in various marketplaces.

## **5.4 Limitation and Recommendation**

### **5.4.1 Limitations**

In this research, the results conclude from this study are based on the nature of innovative textiles and fashion. The design matters and design factors identified in this research may vary when applying the digital visual merchandising for other fashion items or beyond the fashion industry. The implementations involved with the established digital visual merchandising design model were focused on the exhibition designs in offline and online formats, then promoted on the websites. The digital tools employed to promote innovative textiles and fashion were limited to the digital photo, video and text description in order to create immersive and emotional environment to audiences. It is necessary to find more resources to employ other digital tools such as virtual reality, augmented reality, mediated reality and interactive technology to enhance the presentation effects and improve the refinement of the constructs of the established digital visual merchandising design model.

For the online designs, when all information is presented in digital ways, audiences can only cognise the innovative textiles and fashion through the image and text information. However, because of the limitations in digital presentation approaches, not all information related to the

innovative textiles and fashion can be elaborated clearly through the available facilities. There may have some differences and distances in the perceptions and experiences in offline and online scenarios. Especially, when the textiles or fashions are in complex structure, audiences may feel difficult to understand the principles of the textile/fashion structure and may have other needs such as eager to touch the textiles or fashion items. At present stage, this problem might be solved by providing the image information in high quality and with more details such as the production process, technology illustration. Moreover, text information should also be provided as detailing as possible so that audiences can read as the supplementary to the image information for a better understanding. If the resources are available, the online design can be presented combining with the offline design so that audiences can reach the online information conveniently and experience in the offline environment more real.

#### **5.4.2 Recommendation**

There is a need for continually applying the model into more fashion and textile related promotional events in both offline and online formats to trace the possible changes in the design factors and their impacts as shown in the established model. The results may vary due to the different brands, merchandise, audiences, and digital scale. The model may be improved by employing more digital tools. The design contexts and the promotional effects utilising new digital tools should be explored and applied to the digital visual merchandising.

Further research may involve testing of the developed model and digital visual merchandising design performance from a more objective perspective by employing the

quantitative research method. The design factors that emerged from qualitative research can be tested using instruments such as questionnaires and structured interviews when conducting new implementations and receiving more feedback from the audiences. The comparisons between the quantitative research and qualitative research will provide a rigorous theoretical explanation of the phenomenon created in new digital visual merchandising designs.

In the research, the empirical research and the design factors was conducted and identified based on the international fashion and textile brands. For emerging designer brands and the brands in China, the available facilities, target consumers and the design and business ecosystems might be different, which may also cause the changes to the digital visual merchandising design performance. Similar research can be carried out in the digital visual merchandising for commercial textile and fashion products and brands in China. It would be worthwhile to compare the results and find out the similarities and differences of design factors in digital visual merchandising design in fashion items and other product categories.

In conclusion, this qualitative study has suggested the framework of design factors influencing digital visual merchandising design for innovative textiles and fashion promotion. The impacts of design factors on the digital visual merchandising design in each design phase are complex. This theory-building research provides a foundation to develop digital visual merchandising as a promotional method for innovative textiles and fashion.



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# APPENDICES

## Appendix 1

### Online Promotion for Offline Exhibition 1

Platform	Link of the Article	Image
1. Jupas Mingpao	<a href="#"><u>Retrospective Exhibition “Self-Organisation: Junichi Arai’s Textile Anthology” – Organised by ITC, PolyU</u></a>	
2. HK ARTION	<a href="#"><u>Textile Anthology Exhibition</u></a>	
3. Art News	<a href="#"><u>Self-Organisation: Junichi Arai’s Textile Anthology</u></a>	
4. Ta Kun Pao	<a href="#"><u>Retrospective exhibition for Japanese textile master Junichi Arai</u></a>	

5. AM730

Retrospective exhibition for Japanese textile master Junichi Arai



6. Bastille Post

Hit the confusion period of textile design, prodigy of Japanese textile work showing in PolyU



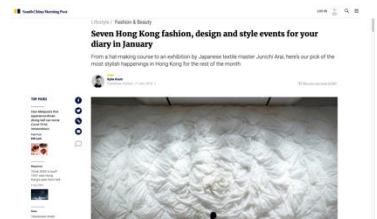
7. HK 01

[Exhibition] Textile techniques combined by Junichi Arai



8. South China Morning Post

Exhibition showcases designs by Japanese weave master



9. Apple Daily

Self-Organisation: Junichi Arai's Textile Anthology



## Appendix 2

### Traditional Promotion to Offline Exhibition 1

Platform	Link of the Article	Image
1. Hong Kong Economic Times  27 Nov 2017	Japanese Textiles, Aesthetics and Connotation – Exhibition “Self-Organisation: Junichi Arai’s Textile Anthology”	
2. Sing Tao Daily  29 Dec 2017	“Self-Organisation: Junichi Arai’s Textile Anthology” – Organised by PolyU	
3. Sing Tao Daily  4 Jan 2018	Dream Weaver	

4. Hong Kong  
Economic  
Journal

18 Jan 2018

Review the works by Junichi Arai



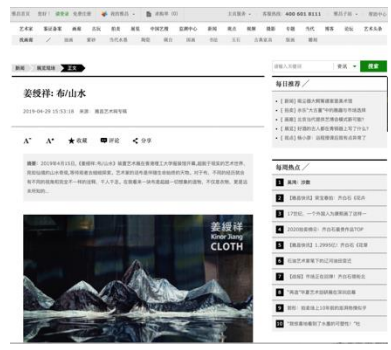


5. metropop

Self-Organisation: Junichi Arai's  
Textile Anthology



## Appendix 3

### Online Promotion for Offline Exhibition 2

Platform	Link of the Article	Image
1. Yachang	<a href="#"><u>Kinor Jiang: Cloth/Landscape</u></a>	
2. iMuseum	<a href="#"><u>Kinor Jiang: Cloth/Landscape</u></a>	
3. Douban	<a href="#"><u>Cloth   Kinor Jiang</u></a>	

#### 4. ARTMAP

#### CLOTH | KINOR JIANG



#### 5. Facebook

#### Cloth / Landscape



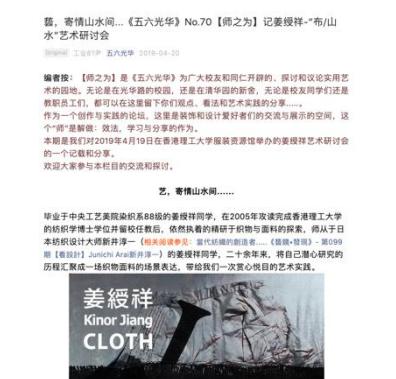
#### 6. China Finance Bond

#### Kinor Jiang: Cloth/Landscape





#### 7. 56GH

#### Kinor Jiang: Cloth/Landscape



## Appendix 4

### Online Promotion for Online Exhibition

Platform	Link of the Article	Image
1. WeChat public account: YiShuYan	<a href="#"><u>Look Loop: Transitional Knitting</u></a>	<p>絲絲入扣：嚴宜舒研究作品展 YiShuYan 6/26</p>  <p>LOOK LOOP: Transitional Knitting 絲絲入扣：嚴宜舒研究作品展 2020.06.18起線上展出</p> <p>主辦單位：香港理工大學紡織及服裝學系服裝館 學術指導：麥耀祥、周金云 展覽策劃：彭青歌 展覽管理：鄭潔兒</p>
2. WeChat public account: PolyU Base	<a href="#"><u>The Fashion Gallery Online Exhibition   Look Loop: Transitional Knitting</u></a>	<p>理大服裝館   絲絲入扣：嚴宜舒研究作品線上展 Original PolyU Base 香港理工大學深田产学研基地 7/2</p>  <p>理大紡織及服裝學系是該領域全球最具影響力的科學學系之一。該系服裝館是香港唯一一個致力於展示時裝展覽的展廳——展示著東方與西方。從過去到現在，從知名以至新進的藝術家的作品，此次《絲絲入扣》作品展由服裝館主辦，首次在云上亮相。理大紡織及服裝學系嚴宜舒博士擔任展覽設計師。</p> <p>本次展覽呈現了一種利用針織技術進行三維可拉伸紡織品設計的新方法，作品突</p>