



THE ALCHEMY OF FLAWS: TRANSFORMING MACHINE ERRORS IN PRE-CONSUMER  
GARMENT WASTE INTO VISUAL STORY AND DESIGN PROTOTYPES



A Thesis Submitted in Partial Fulfillment of the Requirements  
for Doctor of Philosophy Design Arts (International Program)

Silpakorn University

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THE ALCHEMY OF FLAWS: TRANSFORMING MACHINE ERRORS IN PRE-  
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By  
MR. Minjade PAKLAPAS

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Title                   The Alchemy of Flaws: Transforming Machine Errors in Pre-  
Consumer Garment Waste into Visual Story and Design Prototypes  
By                       MR. Minjade PAKLAPAS  
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MR. Minjade PAKLAPAS : The Alchemy of Flaws: Transforming Machine Errors in Pre-Consumer Garment Waste into Visual Story and Design Prototypes Thesis advisor : Professor Dr. Eakachat Joneurairatana

This research investigates how machine-induced errors in pre-consumer textile waste—specifically seam puckering, misalignment, and distortion—can be transformed into design assets rather than production flaws. Based on data collected from Bangkok-based factories, the study uses computational analysis and visual methods to classify these defects and reinterpret them as part of new aesthetic systems. The outcomes include a short film, a series of physical prototypes, visual documentation, and design flowcharts that demonstrate the transformation of flaws into sustainable fashion concepts. This project contributes to creative reuse strategies and offers a practical model for integrating error-based design into contemporary textile practices.



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I would also like to share the short film “Alchemy of Flaws — Director's Cut (2025),” created as part of this thesis work. It is available at: <https://bit.ly/3ZorKTr>

Minjade PAKLAPAS

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## CHAPTER 1 INTRODUCTION

### 1.1 Research Background

Tackling into the vibrant world of the global fashion industry reveals a dynamic fusion of cultural, economic, and ecological narratives. This sector not only dictates global fashion trends but also significantly influences societal behaviors and economic stability across continents. From the bustling streets of fashion capitals to the sprawling industrial complexes in emerging economies, the fashion industry is integral to both cultural expression and economic development on a global scale.

Despite its substantial contributions to job creation and economic throughput, the fashion industry confronts a paradox. It stands at the crossroads of innovation and sustainability, wrestling with the dual challenges of maintaining economic growth while mitigating its environmental footprint. As environmental consciousness heightens globally, the spotlight intensifies on the industry's practices, especially concerning resource utilisation and waste management. The modern narrative no longer views sustainable practices as optional but essential for future viability, prompting a pivotal shift towards eco-friendly and ethically responsible fashion production.

This transformation is catalysed by the reevaluation of what traditionally constitutes waste. Production errors, such as misprints, dye mismatches, and fabric cuts, historically seen as mere byproducts of manufacturing inefficiencies, are being reconsidered. These anomalies, often relegated to the realms of waste, are now viewed through a lens of potential—valuable resources for innovative design. This shift not only represents a strategic pivot in production practices but

also embodies a broader philosophical shift towards viewing these imperfections as opportunities for creative ingenuity and sustainable development.

## 1.2 Significance of Research

### **Redefining Industry Norms and Economic Impact:**

**Sustainable Economic Practices:** The fashion industry, as a significant economic force, faces the imperative to evolve. This evolution involves adopting practices that balance robust economic growth with stringent environmental standards. By transforming how we perceive and utilise resources, the industry can forge a path toward sustainability that does not compromise on economic benefits.

**Innovative Environmental Strategies:** The reutilisation of materials once considered waste represents an innovative stride towards sustainability. This approach not only alleviates the environmental burden but also sparks a wave of creativity in design processes. It challenges designers to infuse new life into what was once discarded, turning flaws into distinctive features that enhance both the aesthetic and functional value of fashion items.

**Transformation of Waste into Resource:** Viewing production discrepancies as a resource necessitates a profound rethinking of waste and resource management within the fashion industry. This reconceptualisation not only aids in reducing the ecological footprint but also enhances economic efficiency by turning potential waste into a conduit for innovation and design excellence.

### 1.3 Statement of the Problems

The matter of efficiency starkly challenges the proclaimed sustainability commitments often voiced by industry leaders. My personal journey toward sustainable solutions identifies this as a pivotal issue. The prevalent adherence to traditional manufacturing models, which favor cost-cutting and rapid production over quality and ecological responsibility, fuels a continual waste generation cycle. This cycle not only contradicts modern environmental principles but also undermines the potential for innovative progress within the industry.

To counteract this, a fundamental transformation in the industry's approach to its production processes is imperative. Adopting cutting-edge waste minimisation tactics and reassessing the entire lifecycle of textile products could dramatically diminish the ecological impact of the industry. Moreover, such changes would help set new benchmarks for responsible manufacturing, inspiring other sectors to emulate these practices. Embracing this strategy not only supports global sustainability efforts but also bolsters the industry's reputation and ensures its economic future, fostering a new standard where ethical practices are integral to business operations.

#### 1.3.1 Industry Context

The fashion sector serves as a cornerstone of global commerce and culture, weaving a complex tapestry of economic transactions and aesthetic trends across continents. As a significant contributor to worldwide economic stability and employment, the industry simultaneously confronts considerable sustainability challenges. With its substantial impact, the fashion sector faces critical scrutiny over its environmental footprint, particularly criticised for the inefficiencies and waste pervasive in its production processes.

### 1.3.2 Economic Impact

The economic contribution of the fashion industry is immense, supporting countless livelihoods globally and acting as a crucial component of numerous national economies. Yet, it grapples with the necessity to foster economic growth alongside mitigating environmentally unsustainable practices that threaten its future viability. The industry must navigate a delicate equilibrium where the escalating costs of waste management and ecological remediation meet increasing demands for sustainable practices from regulators and consumers alike.

### 1.3.3 Environmental Consequences

Achieving environmental sustainability represents a formidable challenge for the fashion industry, burdened by its dependency on high-resource-consuming activities. Issues range from the extensive use of water in textile dyeing to the disposal challenges posed by non-degradable materials. The sector is pressed to overhaul these processes, striving to minimise ecological harm while still fulfilling market demands for high-quality products. (Ferrari, 2025)

### 1.3.4 Waste Management Challenges

Fashion production traditionally follows a linear "take-make-dispose" model, generating significant amounts of waste, particularly from defects and errors during manufacturing. This waste not only represents a loss of resources but also poses considerable environmental and economic costs. The industry is thus compelled to rethink its production strategies, aiming to transform waste into a resource through innovative design and manufacturing techniques. (Ilić, 2024)

## 1.4 Hypotheses

### **Machine Errors as an Opportunity**

Common Defects and Their Causes In textile production, machine errors such as puckering, misalignments, and distortions often lead to high reject rates and increased waste. Understanding the origins and mechanics behind these errors is crucial in the journey toward their creative reincorporation into the design process. Understanding these errors can be repurposed as aesthetic and structural design elements in textile innovation. By reframing these imperfections as valuable components in garment design, the study explores how such errors can contribute to sustainability, waste reduction, and new creative methodologies in fashion. (Henninger, 2021; Ipek Kazancoglu, 2020)

### **Common Defects and Their Causes**

Machine errors in textile production, such as puckering, misalignments, and distortions, typically lead to rejection rates that exacerbate waste issues. Understanding these defects and their origins is the first step towards transforming them into design elements. This research examines the potential of these errors to be integrated into design processes rather than being discarded. The expected outcome is the classification and application of these defects into viable textile patterns that enhance product uniqueness while promoting sustainability.

(Barker, 2011; Li & et al., 2021; Ministry of the Environment, 2000)

### Historical Perceptions of Errors

Historically, these production errors have been viewed through a negative lens, impacting the perceived quality and marketability of textile goods. This traditional perspective has often prevented the innovative incorporation of these flawed materials into fashion design, sidelining them as mere waste.

However, contemporary fashion and design philosophies like Kant's aesthetics Mottanai, or postmodern deconstructionism, these theories possibly challenged this perception by embracing imperfection as a design principle.

This study hypothesises that incorporating machine errors into textile design can shift consumer perception, making these flaws desirable elements rather than manufacturing mistakes. (Wenzel, 2009)

#### 1.5 Objective of research and Contributions

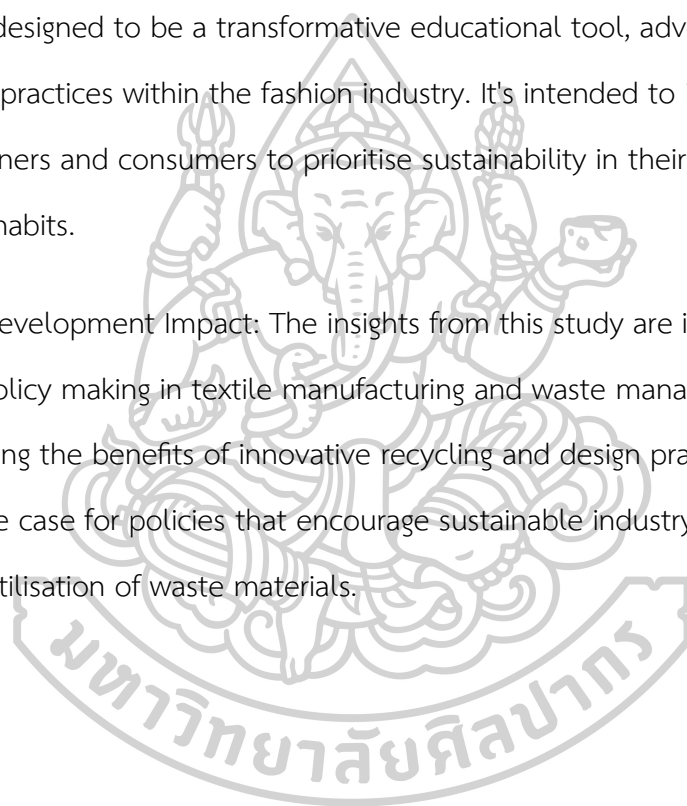
**Reframing Errors as Aesthetic Opportunities:** This study advocates for a paradigm shift in how these imperfections are viewed, suggesting that they should be seen not as waste, but as distinctive features that can enhance both the aesthetic and functional value of fashion items. Integrating these errors into the design process opens new avenues for both sustainability and creative innovation.

In addition, the objectives of this research is: to identify and categorise machine-induced errors in Bangkok's textile industry, with a primary focus on seam puckering, misalignment, and distortion. It explores how these errors can be transformed into sustainable and commercially viable design elements through visual storytelling and physical prototypes. Additionally, the study examines the impact of creative reuse on industry awareness, consumer perception, and market acceptance, particularly in relation to sustainability and aesthetics.

Practical Outcomes: My study illustrates the conversion of manufacturing errors into commercially viable design elements, offering actionable solutions for textile producers and fashion designers. This shift could fundamentally alter industry norms, treating waste as a valuable resource rather than an unavoidable byproduct.

Educational Contributions: The video documentation crafted throughout this research is designed to be a transformative educational tool, advocating for sustainable practices within the fashion industry. It's intended to influence both future designers and consumers to prioritise sustainability in their design choices and purchasing habits.

Policy Development Impact: The insights from this study are intended to influence policy making in textile manufacturing and waste management. By demonstrating the benefits of innovative recycling and design practices, the research supports the case for policies that encourage sustainable industry practices and creative reutilisation of waste materials.



## 1.6 Research Questions

How can machine errors in fabric production be transformed into valuable design elements to enhance both aesthetic appeal and sustainability in fashion design, and how can this transformation be effectively documented and communicated through video storytelling to serve as an effective tool to document, communicate, and influence industry and consumer perceptions regarding these transformations?

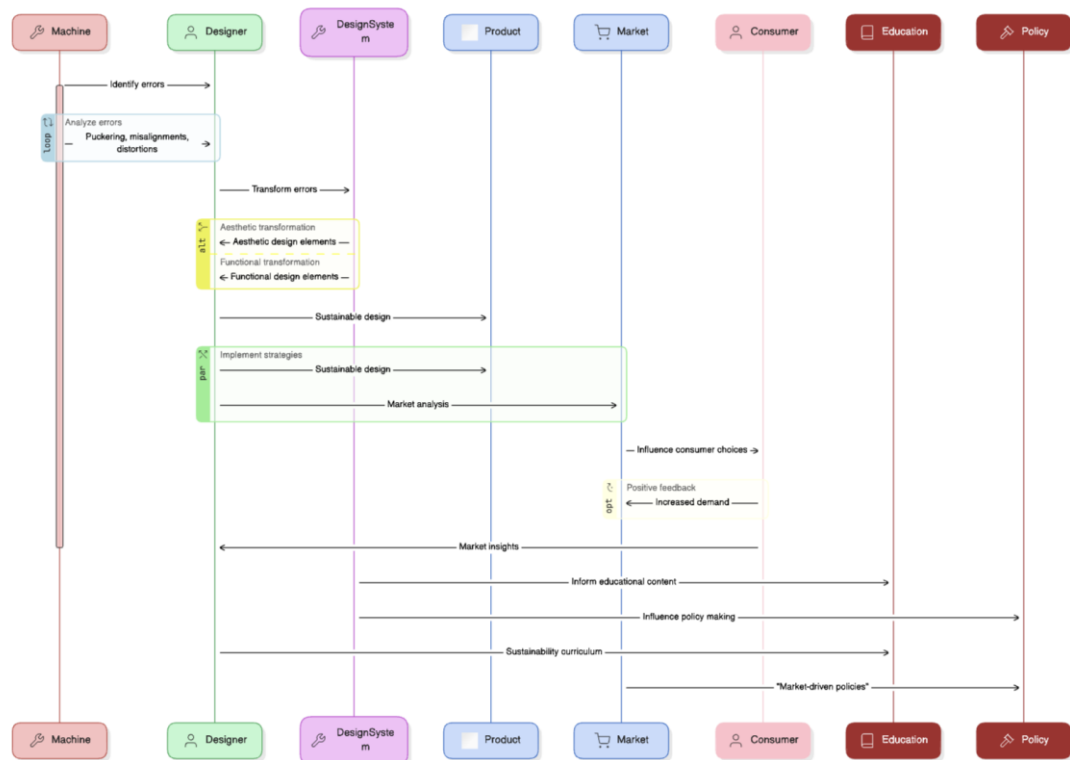


Figure 1 – Minjade Paklapas Sustainable Design Flow Chart

(Source: Author)

### 1.7 Scope of the research

This study focuses on the aesthetic and functional transformation of pre-consumer waste, specifically machine errors such as misprints and fabric distortions in the textile industry of Bangkok, Thailand. It aims to investigate how these imperfections can be creatively repurposed to add value and sustainability to fashion items. The research will be conducted within the context of local printing and sewing factories, examining how aesthetic judgments about these errors can influence product development and consumer perception in the regional fashion market. The process and outcomes will be documented through a series of video stories showcasing the practical steps and creative solutions involved in this transformation.

## 1.8 Limitations of the Research

The study's findings will be influenced by several constraints:

**Geographical Limitation:** The research is limited to Bangkok, Thailand, and might not represent the broader global practices or perceptions related to textile waste management and creative reuse.

**Industrial Focus:** The study specifically examines printing machines and sewing factories, which may limit their applicability to other types of textile manufacturing processes or errors.

**Resource Availability:** Access to advanced recycling and redesign technologies may be limited, potentially affecting the implementation of innovative design solutions.

**Cultural Perceptions:** Local cultural attitudes towards recycled and redesigned products could affect the acceptance and success of the final products.

## 1.9 Relationship Between Research Components

### Relationship between RO, RQ, RH, RM, ROC

Research Objective (RO)	Research Question (RQ)	Research Hypothesis (RH)	Research Methodology (RM)	Research Outcomes (ROC)
To explore how machine-induced errors in textile production, such as seam puckering, misalignment, and distortion, can be transformed into sustainable and innovative design elements through visual storytelling and physical prototypes.	How can machine errors in fabric production be transformed into valuable design elements to enhance both aesthetic appeal and sustainability in design, and how can this transformation be effectively documented and communicated through video storytelling?	Machine-induced errors, when intentionally used in design and presented through visual storytelling, will be perceived as innovative, aesthetically appealing, and aligned with sustainable practices.	A mixed-method approach will be used. Surveys and interviews will assess awareness of pre-consumer textile waste and perceptions of flaws in design. The findings will inform the creation of a short film and physical prototypes.	<ol style="list-style-type: none"> <li>1. A short film presenting machine errors as aesthetic and sustainable design elements.</li> <li>2. Physical prototypes that integrate flaws into innovative designs.</li> <li>3. Audience feedback on perceptions of flaws in design.</li> <li>4. Insights for industries on sustainable design practices.</li> </ol>

Table 1 – Relationship between research components

## CHAPTER 2 LITERATURE REVIEW

### 2.1 Pre-Consumer Waste

In the realm of manufacturing, especially within the textile industry, pre-consumer waste represents a substantial challenge. This segment of waste encompasses materials that are discarded before they ever reach the consumer, marking a significant area of concern for environmental and economic sustainability. This exploration delves into the nature of pre-consumer waste, assessing its environmental impact, economic ramifications, and the progressive strategies that mitigate its occurrence.

#### 2.1.1 Definition and Scope

Understanding the scope of pre-consumer waste is crucial for developing effective management strategies. It encompasses not just the loss of tangible materials but also the associated environmental and economic impacts. For instance, every yard of fabric waste represents a loss of water, chemicals, and energy that were used in its production. Therefore, managing this waste is not just about reducing the volume of materials discarded but also about enhancing the efficiency of resource use throughout the manufacturing cycle.

In response to this challenge, my research focuses on innovative strategies that repurpose these discarded materials into new design prototypes. By transforming what would typically be considered waste into valuable components for creative projects, the research not only recycles materials but also reimagines their potential. This approach seeks to redefine the lifecycle of textile products, extending their usability and reducing the industry's overall environmental footprint. Such strategies

are critical in shifting towards more sustainable manufacturing practices that respect both the ecological and economic dimensions of production (Henninger, 2021)

#### 2.1.2 Environmental Impact

The repercussions of pre-consumer waste on the environment are profound, leading to significant resource depletion and increased emissions. My study leverages documented evidence to propose and implement sustainable management strategies that creatively repurpose pre-consumer waste. The objective is to cultivate environmentally sound design solutions that mitigate these impacts, thereby fostering a more sustainable fashion industry framework (Henninger, 2021)

#### 2.1.3 Economic Implications

The inefficiencies in material utilisation not only elevate production costs but also lead to considerable economic losses. Drawing on existing economic analyses, my thesis demonstrates the potential for innovative reuse strategies for machine errors and pre-consumer waste to reduce costs and spawn new value within the fashion sector. This approach champions a shift towards a circular economic model, transforming erstwhile waste into a sustainable and economically beneficial resource (Guoyu Chen, 2024)

#### 2.1.4 Case Studies in Waste Management

Initiatives such as those led by FABSCRAP exemplify practical approaches to waste management, focusing on the collection and redistribution of pre-consumer textile waste to enhance markets for recycled textiles. These implementations are pivotal in illustrating how pre-consumer waste can be transformed into a valuable

resource for innovative design. Furthermore, the studies by (Chand, 2023) examine how modular design contributes to waste reduction by facilitating the disassembly and subsequent reuse of materials. This methodology underscores a zero-waste strategy that re-introduces materials into production cycles, thus promoting sustainable manufacturing practices (Henninger, 2021)

#### 2.1.5 Technological Innovations

Technological advancements are increasingly pivotal in refining the processes of textile recycling, playing a key role in enhancing the efficiency and effectiveness of these systems. The integration of improved sorting technologies and digital platforms for waste tracking, extensively reviewed in the current research, is fundamentally transforming the landscape of textile recycling. These technologies do not merely enhance existing processes; they revolutionise the approach to pre-consumer waste, converting what was once considered refuse into high-quality materials suitable for new design prototypes. These pioneering technologies do more than recycle; they reimagine the lifecycle of textile products, fostering sustainable practices that meld seamlessly with innovative outcomes in textile design.

Further, the groundbreaking recycling processes explored by (Sujata Chand, 2023) represent a significant paradigm shift. These methods enable the conversion of textile fibers back into their raw material states, effectively resetting their lifecycle. This capability marks a transformative shift that could potentially redefine the very concept of waste in the textile industry. By allowing fibers to be reused continually, these technologies promote a virtually endless cycle of use and reuse, aligning perfectly with the principles of a circular economy and pointing towards a future where textile waste is an outdated concept (Sujata Chand, 2023)

Such technological innovations stand at the forefront of the industry's fight against waste and the quest for sustainability in textile manufacturing. By integrating these advanced recycling technologies, the industry sets new benchmarks for what can be achieved in sustainable textile design. The implications of these technologies extend beyond mere efficiency—they underscore the creative potential unleashed when materials are viewed not as disposable, but as enduring resources.

#### 2.1.6 Policy and Regulatory Frameworks

The development and enforcement of policy and regulatory frameworks are crucial in managing pre-consumer waste effectively within the textile industry. Research by (Sujata Chand, 2023) emphasises the role of regulatory measures in enforcing standards that promote the reuse, recycling, and reduction of waste, highlighting the necessity for stringent guidelines to improve the economic and environmental conditions of the textile industries. These regulatory frameworks are pivotal in establishing a foundation that supports sustainable management practices, aiming to transition industries towards more sustainable operations.

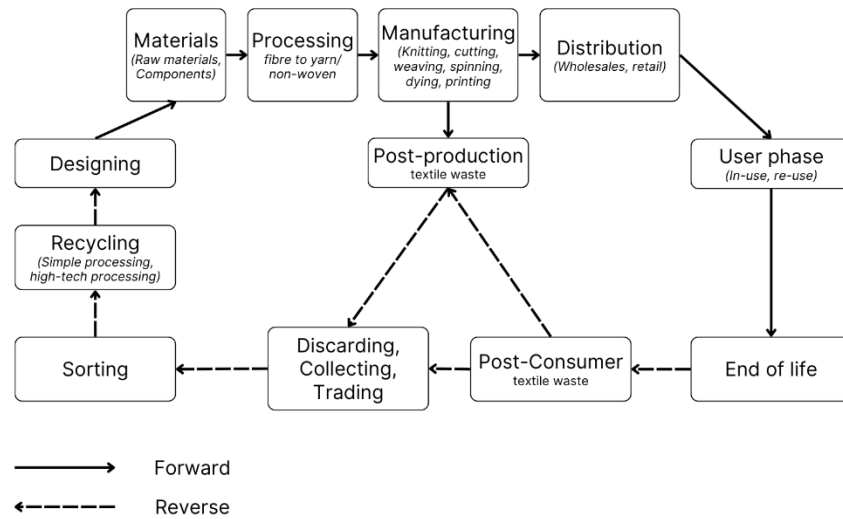


Fig: Minjade Paklapas Circular Model (Adapted from Kazancoglu et al., 2020; Redesigned by Minjade Paklapas, 2024).

Figure 2 – Circular Model (Adapted from Kazancoglu et al., 2020; Redesigned by Minjade Paklapas, 2024)

Similarly, (Ipek Kazancoglu, 2020) propose a comprehensive framework identifying barriers within circular supply chains, with a significant focus on rules and regulations (Fig. 2) They outline the need for policies that address the full spectrum of supply chain stages, from production to waste management, to overcome obstacles that hinder the adoption of circular economy principles. The study categorises regulatory barriers as key challenges that need to be addressed to facilitate a smoother transition to circular supply chains in the textile sector.

Both studies underscore the imperative for coherent policies that not only enforce compliance but also encourage innovation in waste management. By integrating these insights, this thesis advocates for robust policy development that not only mandates but also motivates industries to adopt practices that significantly reduce pre-consumer waste. This involves enhancing regulatory frameworks to support innovative recycling technologies and modular designs that contribute to

waste minimisation and resource efficiency. The alignment of policy initiatives with industry practices is essential to propel the textile industry towards sustainable growth and ecological responsibility.

## 2.2 The Aesthetic of Error: Historical, Philosophical, and Cultural Perspectives

Exploring error aesthetics reveals a domain where deviations traditionally considered detrimental transform into pivotal artistic elements. This field reevaluates accidental or unintended technological and manual deviations, recognising them not as mere disturbances but as enriching facets of artistic narratives. This shift in perspective challenges entrenched norms about flawlessness, proposing a more inclusive appreciation of beauty that embraces imperfection as an essential component of creativity.

### 2.2.1 Definition of Scope

Error aesthetics explores the intriguing intersection where traditional views of technological and manual errors, often perceived as flaws or faults, are reimagined and valourised as key artistic elements. This artistic domain appreciates the accidental or unintended aspects of art and technology, viewing these elements not as nuisances but as vital components that enrich the narrative depth and aesthetic impact of artworks. Within digital media, this reevaluation allows artists to subvert the conventional pursuit of flawlessness, advocating for a broader, more inclusive definition of beauty that includes the imperfect and the unpredictable. By harnessing these 'mistakes,' artists and designers challenge entrenched aesthetic norms, pushing the boundaries of creativity to include the chaos and complexity of error (Barker, 2011). This redefinition of error directly informs the methodologies of my study, which seeks to integrate such aesthetic principles into the design of new prototypes,

harnessing perceived flaws to enhance the visual and functional aspects of textile products.

### 2.2.2 Historical Evolution of Error Aesthetics

Error aesthetics have evolved significantly over the decades, starting from early mechanical errors to contemporary digital glitches that artists harness to disrupt and transform traditional visual and auditory experiences. Originally observed in the mechanical malfunctions of early 20th-century machinery, this approach was later embraced by movements such as Dada, which celebrated randomness and the breakdown of logical structures. As technology advanced, so did the application of error aesthetics, particularly in the digital realm where glitches are not only more prevalent but can be deliberately induced to produce unique, unexpected artistic outcomes.

This historical progression underscores a pivotal shift from viewing technological errors as mere annoyances to embracing them as essential, transformative elements of modern art, reflecting the increasing complexity and integration of technology in everyday life (Madzosi, 2020). The historical context of error aesthetics enhances the theoretical framework of my study by providing a deeper understanding of how these practices can be applied to textile design, transforming errors from production processes into deliberate, aesthetically pleasing features.

### 2.2.3 Philosophical Perspectives on Imperfection

The philosophical underpinnings of error aesthetics challenge the traditional disdain for imperfection by valourising the unexpected and the accidental within the creative process. This perspective posits that true beauty and authenticity in art may stem from imperfections, which provide a more genuine representation of the human condition. Philosophers and artists argue that by embracing the imperfect and

the ephemeral, art can more accurately reflect the inherent unpredictability and flawed nature of human existence. Moreover, this acceptance of error as an aesthetic category opens up new dialogues about the role of technology in art, questioning whether true artistry lies in the creator's ability to control the medium or in their capacity to adapt to and incorporate the inherent unpredictability of their tools.

Through this lens, error aesthetics not only challenges the aesthetic norms that prioritise perfection but also encourages a deeper, more philosophical engagement with the materials and processes of art creation, promoting a cultural shift towards valuing transparency and vulnerability in artistic expressions. This philosophical approach is integral to my study as it informs the development of design strategies that emphasise the aesthetic and conceptual value of imperfections, encouraging a re-evaluation of error not as a fault but as a potential driver of innovation in textile design.

### **2.2.3.1 Incorporating Wabi-Sabi into Design Philosophies**

Patrick Altair's insights into Wabi-Sabi provide a compelling contrast to Western aesthetics through its celebration of the beauty found in imperfection, impermanence, and incompleteness. According to Altair, this concept, deeply rooted in Japanese culture and Buddhist philosophy, challenges the pursuit of flawlessness prevalent in Western art and design. He illustrates this through the tale of two Venuses (**Fig. 3**)



Figure 3 – Venus

Altair discusses how the Venus de Milo, unlike its more complete counterparts, draws fascination precisely because of its incomplete state, prompting viewers to engage more deeply with the artwork by filling in the missing pieces through imagination. This attraction to the incomplete is a key principle of Wabi-Sabi, which sees the aging and degradation of objects not as a detraction but as an enhancement of their beauty and authenticity.



*Figure 4 – Kintsugi*

Further exploring the concept, Altair delves into 'kintsugi,' the Japanese art of repairing broken pottery with lacquer dusted or mixed with powdered gold, silver, or platinum. **(Fig. 4)** This method does not merely repair but also beautifies the item, emphasising its fractures instead of concealing them. This aligns closely with the philosophy discussed in this section of the dissertation, where embracing imperfections can lead to a more profound appreciation and understanding of both art and the human condition.



*Figure 5 – Pottery*

Further illustrating the profound cultural embrace of imperfection is the Japanese Noragi, a type of peasant Boro jacket. Each Noragi serves as a vivid tapestry of history, meticulously crafted from hemp and cotton and repaired over countless generations. The eclectic patchwork of these garments, much like the famously tattered rain jacket of England's Prince Charles, narrates a rich history of utility and preservation. Tracing the seams of a Noragi, one unfolds the lineage and life of a family, each stitch a testament to the jacket's resilience and the family's resourcefulness.

The aesthetic of the Boro jacket, (Fig. 6) with its layers of patches and mends, exemplifies Wabi-Sabi in its purest form — an artifact that has been aged, worn, and lovingly restored, passing through many hands, accruing both character and narrative with each repair. This type of garment highlights the beauty found in the cumulative

history of objects, celebrating their transformation over time rather than seeking to disguise their wear.



Figure 6 – Boro (Orime)

While Wabi-Sabi remains predominantly an Eastern aesthetic, deeply rooted in Japanese culture, its principles resonate globally, finding unexpected echoes in the West. This is evident not only in antiquities such as the Venus de Milo but also in everyday items like a well-worn pair of denim jeans. Both carry the marks of their existence proudly, inviting observers to appreciate their stories of endurance and transformation.

Such objects challenge designers to contemplate the transient, imperfect nature of life and its artifacts, urging them to incorporate these qualities into their creative processes. Recognising that imperfection, impermanence, and incompleteness are

universal experiences, designers can approach their work with humility and a deeper appreciation for the authentic and the enduring. In doing so, they align their practices with a philosophy that transcends geographical and cultural boundaries, advocating for a design ethos that values depth, history, and authenticity over pristine but impersonal perfection.

By incorporating these examples and the philosophical discourse of Altair, the dissertation not only broadens the scope of its analysis on imperfection in design but also illustrates how these principles are universally applicable, yet uniquely manifested across different cultures. This enriches the overall narrative, providing a robust framework for understanding how imperfections can be reinterpreted as essential elements of beauty and storytelling in design.

#### 2.2.4 Bruno Munari and the Aesthetics of Error

In exploring the aesthetics of error, Bruno Munari's artistic philosophy, as expressed in his "Useless Machines," illustrates a foundational approach to integrating error and machine aesthetics into art. Munari, a pivotal figure in the "Movimento d'Arte Concreta," viewed these kinetic sculptures not merely as artworks but as entities capable of interacting with their environments to create unforeseen and errant outcomes. These creations, made from lightweight materials and designed to move with environmental forces like wind, are emblematic of the art outside pre-programmed routines—where the unpredictability of external forces plays a critical role in the artistic expression. This concept parallels modern digital art practices where errors are not seen as faults but as potential for creative expression (Barker, 2011)



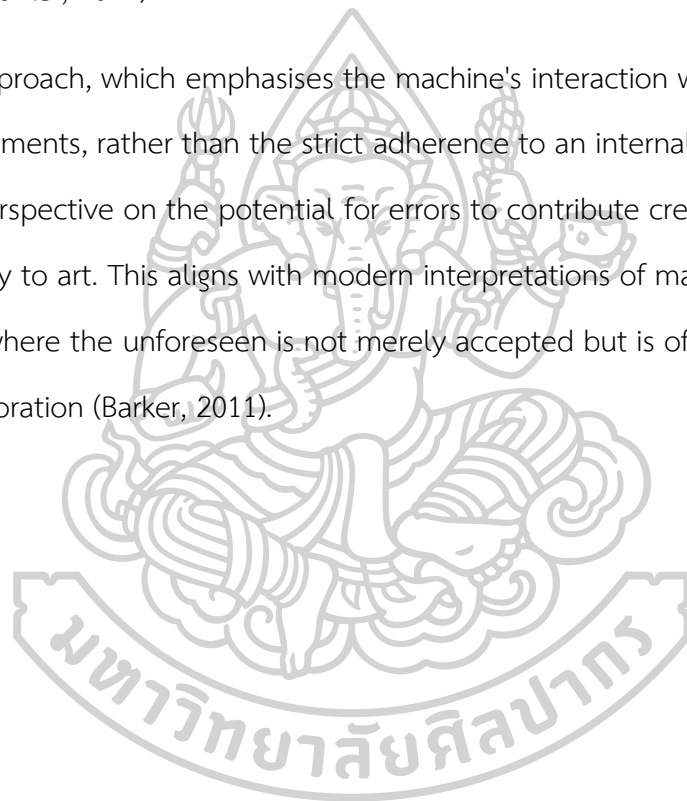
*Figure 7 – Munari's Machines*

(Source: <https://www.wikiart.org/en/bruno-munari/useless-machine-arrhythmic-carousel-1953>)

Munari's machines (Fig. 7) are specifically designed to operate within predefined "degrees of freedom," which dictate the extent of their movement but not the specific outcomes, which are left to chance and environmental interaction. This framework is crucial for understanding how errors can be harnessed creatively, an

idea that is increasingly relevant in digital and process-based arts where systems and algorithms govern much of the creation process but leave room for unpredictable, error-generated outcomes. The unpredictability inherent in Munari's sculptures—where no two interactions are alike due to varying environmental conditions—mirrors contemporary digital practices where errors and glitches are often incorporated deliberately to challenge the viewers' expectations and the traditional aesthetics of digital art (Barker, 2011).

Munari's approach, which emphasises the machine's interaction with unpredictable external elements, rather than the strict adherence to an internal script, offers a valuable perspective on the potential for errors to contribute creatively and meaningfully to art. This aligns with modern interpretations of machine aesthetics in digital art, where the unforeseen is not merely accepted but is often the goal of artistic exploration (Barker, 2011).



## 2.2.5 Kant's Aesthetics

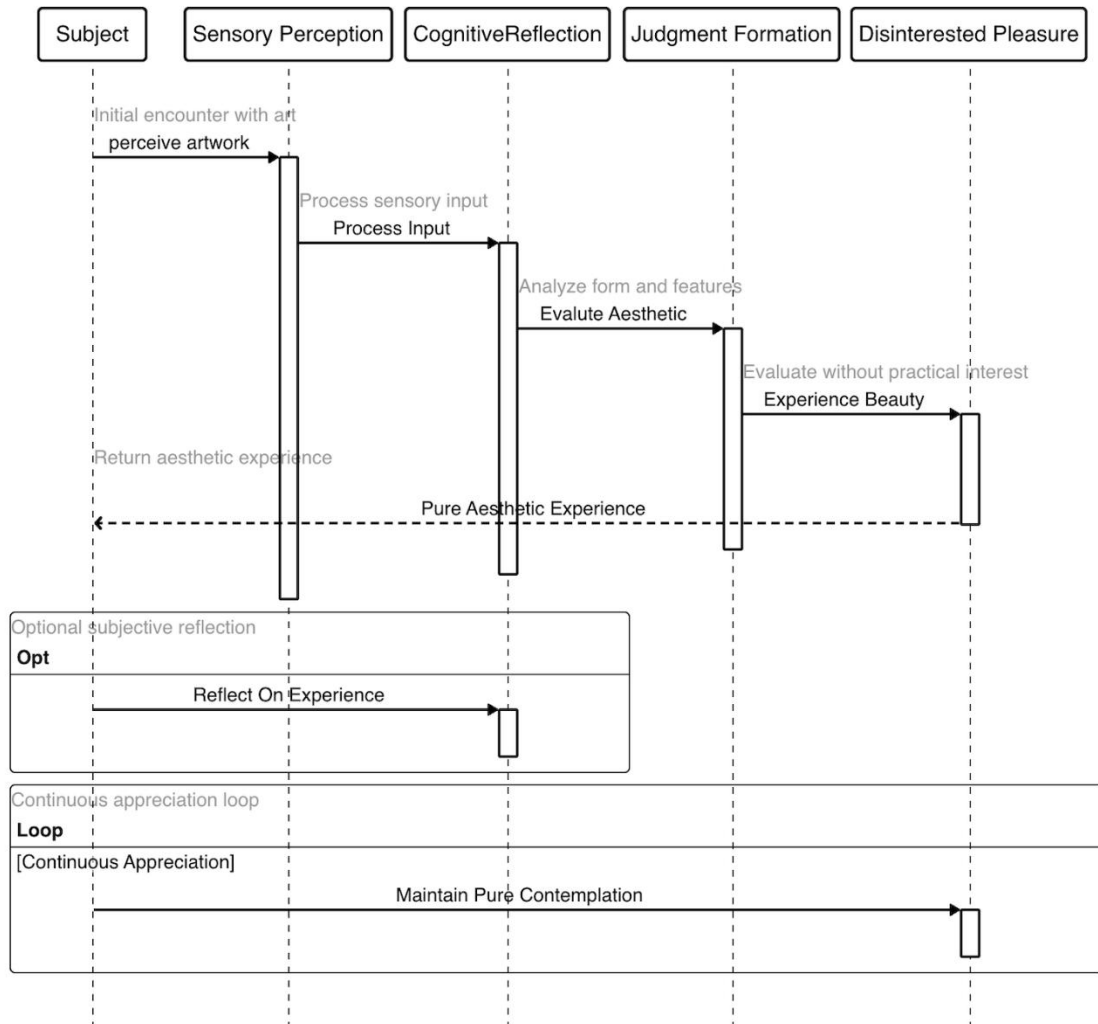


Figure 8 – Minjade Paklapas Summary of Kant's Theory of Aesthetics Experience

Kant also introduces the idea that beauty should be universally recognisable, despite being based on subjective feelings. This universality is not derived from any conceptual agreement but from a shared sense of communal aesthetic experience. According to Kant, when individuals declare something as beautiful, they implicitly believe that this sentiment should be universally valid, expecting others to share their judgment (Wenzel, 2009)

This philosophical approach is particularly relevant to the study of error aesthetics, as it allows for a reconsideration of what constitutes beauty in art and design. By applying Kant's theory, the unintentional or traditionally perceived flaws within the artistic process can be reevaluated as sources of unique beauty that evoke a disinterested pleasure in viewers. This shift challenges traditional perceptions and opens up new possibilities for appreciating the aesthetic value of errors, positioning them as integral to the creative expression and appreciation of modern art.

#### 2.2.6 Wabi-Sabi

In examining the philosophical and aesthetic concept of Wabi-Sabi within the realm of environmental art and design, I engaged into an appreciation for the beauty of the imperfect, impermanent, and incomplete. As articulated by (Jian, 2021) and (Treviranus, 2010), Wabi-Sabi is a manifestation of a deeply ingrained aesthetic consciousness that values the understated and unassuming aspects of objects and their environments. This concept is rooted in a worldview that perceives the beauty in the modest and unconventional, acknowledging life's inevitable transience and imperfections.

Wabi-Sabi's philosophical foundation is closely tied to Zen principles, which emphasise simplicity, naturalness, and a sense of deep tranquillity. These principles foster an aesthetic that appreciates the beauty of the natural aging process and the inherent flaws that arise from it. As (Treviranus, 2010) points out, this perspective is crucial in educational and learning environments where the acceptance of imperfection can lead to a more engaged and deep learning experience. The principle encourages learners and educators alike to embrace errors and incompleteness as opportunities for creativity and growth, fostering a learning environment that values process over perfection.

(Jian, 2021) further explores the integration of Wabi-Sabi into the design space (Fig. 9), emphasising its relevance in creating environments that reflect the harmonious relationship between human beings and their surroundings.

The emphasis on materials that age and weather naturally aligns with a sustainable design ethos that respects the environment and promotes materials' longevity and aesthetic evolution over time.



*Figure 9 – Ryogen-in Temple, Japan*

(Source: Wiki Commons)

Moreover, both authors highlight how Wabi-Sabi challenges the contemporary pursuit of flawlessness in design and cultural production. By embracing Wabi-Sabi, designers and artists are encouraged to step back from the commercial pressures of perfection and instead cultivate a sense of authenticity and depth in their work. This approach not only enhances the aesthetic value of the objects and spaces but also aligns with

ethical and sustainable design practices that are increasingly important in contemporary society.

Wabi-Sabi represents a philosophical and aesthetic stance that stands in contrast to modernity's relentless pursuit of newness and perfection. It offers a lens through which we can reevaluate our cultural practices and educational methodologies, promoting a more thoughtful and inclusive approach to design and learning (Jian, 2021; Treviranus, 2010). By adopting the principles of Wabi-Sabi, we embrace a worldview that values the beauty of the natural cycle of growth, decay, and the imperfections that make life profound and authentic.

Wabi: The Beauty of Imperfection



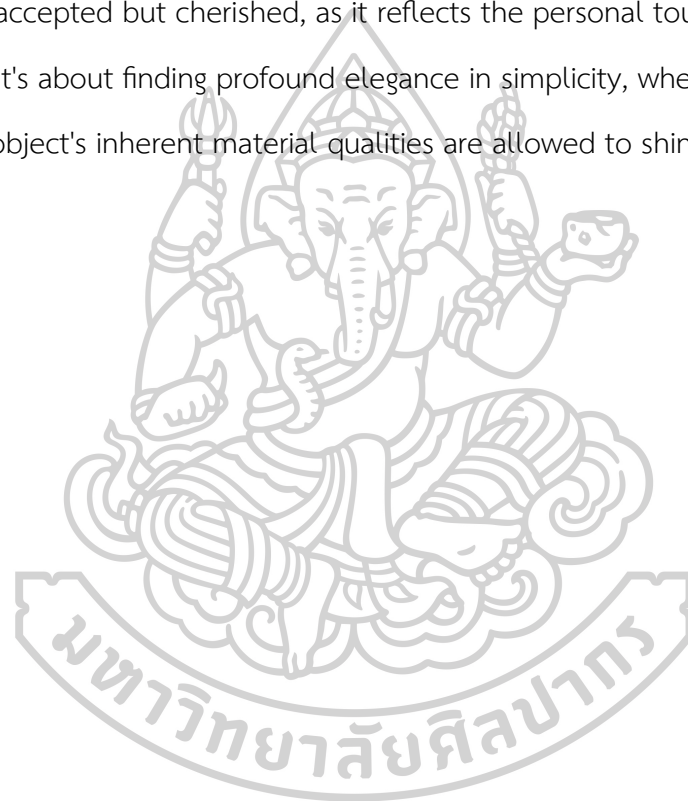
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Figure 10 – Wabi

Wabi (**Fig. 10**) originally referred to the loneliness of living in nature, remote from society. Over time, its meaning evolved to embody an aesthetic of simple, unmaterialistic living, and today, it emphasises rustic beauty and quiet elegance.

This aspect of Wabi-Sabi appreciates the beauty in the modest and understated, valuing the light and shadow of an organic existence. Wabi celebrates the cracks and crevices, the marks that time, weather, and loving use leave behind.

In the realm of design, Wabi encourages the use of materials that are natural, raw, and unrefined. It is seen in the asymmetry of handmade pottery—the slight unevenness and rough texture that suggest the hand of the artist. This imperfection is not only accepted but cherished, as it reflects the personal touch and the spirit of the maker. It's about finding profound elegance in simplicity, where less is more and where the object's inherent material qualities are allowed to shine through.





*Figure 11 – Wabi-Sabi Aesthetic: The Beauty of Imperfection*

The philosophy of Wabi aligns with modern minimalist design, where the focus is on authenticity and a pared-down aesthetic. Designers influenced by Wabi might choose materials that age gracefully and show wear naturally, such as leather those patinas over time or wood that gains character from its grain patterns and knots.

*"Wabi is the beauty of things modest and humble. It is the beauty of things unconventional." (Koren, 1994).*

This reflection by Leonard Koren encapsulates the essence of Wabi within the Wabi-Sabi philosophy, urging a shift from opulence to austerity and from extravagance to minimalism.

## Sabi: The Beauty of Aging



*Figure 12 – Sabi*

**Sabi (Fig. 12)** represents the passage of time and the beauty that comes with age. It's about seeing the greater value in something that has a history and has undergone change, and deterioration yet retains its essence and function. Sabi finds beauty in the patina that time bestows upon objects, such as rust on iron or the way old wood becomes silvery grey.

This concept celebrates decay and the organic process of aging, where the object bears the marks of exposure to life. Sabi teaches us to appreciate the cycle of life and death, acknowledging that everything—from the grandest mountains to the smallest antiques—eventually returns to the earth. It encourages us to look beyond surface appearances to see the beauty in endurance and the character that time imparts to materials.

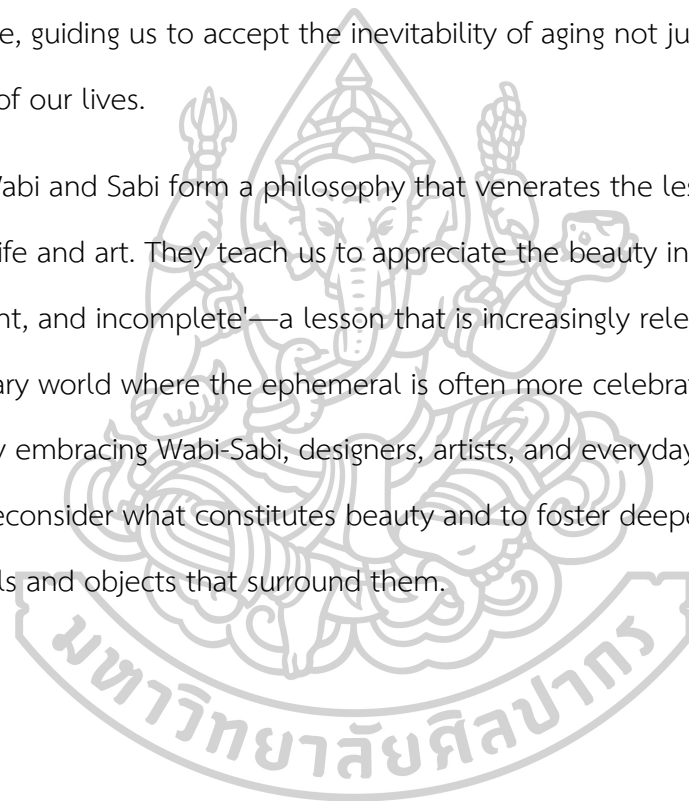
In design, Sabi might influence the choice of maintaining and showcasing the worn and aged parts of buildings or furniture, rather than restoring them to look new. This could manifest in interiors where the natural aging of materials is not only preserved

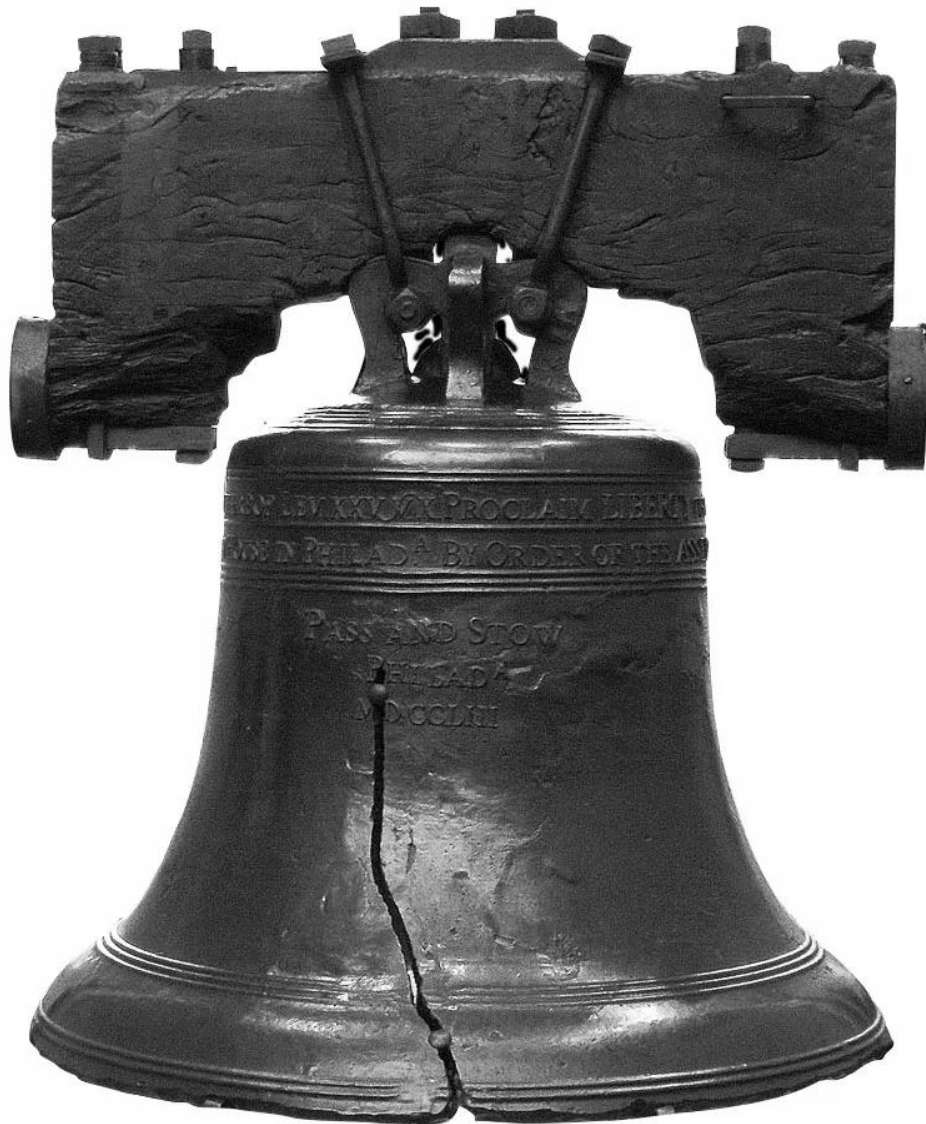
but highlighted as an aspect of the design itself. Architects and designers adopting Sabi might focus on creating spaces that evolve over time, designed to age visibly and gracefully, integrating the environment they occupy.

*"Sabi is the color of a fading flower's petal, it is the calm of the autumn dusk."  
(Juniper, 2003).*

This poetic depiction of Sabi emphasises its meditative qualities and its celebration of transience, guiding us to accept the inevitability of aging not just in nature but in all aspects of our lives.

Together, Wabi and Sabi form a philosophy that venerates the less than perfect aspects of life and art. They teach us to appreciate the beauty in the 'imperfect, impermanent, and incomplete'—a lesson that is increasingly relevant in our contemporary world where the ephemeral is often more celebrated than the enduring. By embracing Wabi-Sabi, designers, artists, and everyday individuals are invited to reconsider what constitutes beauty and to foster deeper connections with the materials and objects that surround them.





*Figure 13 – Bell*

In considering the application of Wabi-Sabi to more familiar Western contexts, I find resonance in the story of the Liberty Bell (**Fig. 13**) Known globally not despite but because of its significant flaw—the prominent crack running through it—the bell exemplifies how imperfections can enhance the symbolic power of an object. This

crack does not render the bell useless; rather, it enriches its story, contributing to its status as a symbol of freedom and resilience in the face of adversity.

### 2.2.7 Mottainai: The Aesthetic of Waste and Value in Japan

Mottainai (Japanese: もったいない or 勿体無い) is a Japanese expression that reflects regret over waste or the feeling of unworthiness to receive something valuable. In English, it can be interpreted as "What a waste!" or akin to the adage "Waste not, want not." The phrase has been adopted by Japanese environmentalists to promote the principles of "reduce, reuse, and recycle" (Kalland, 1995). Kenyan environmentalist Wangari Maathai also popularised the term at the United Nations, using it as a slogan for environmental conservation (United Nations Environment Programme [UNEP], 2005).

Poverty leads to starvation, especially in underdeveloped and developing countries. According to the Food and Agriculture Organisation of the United Nations (FAO), more than 820 million people worldwide suffer from hunger each year, despite global food production being sufficient to feed over 10 billion people (FAO, 2019). Farm workers account for one-third of the world's workforce, and rural farmers produce up to 80% of the food consumed in underdeveloped and developing countries. However, much of this production is allocated for export, making these regions the most affected by hunger (FAO, 2019). This stark contrast highlights how wealthy nations tend to waste food, aligning with United Nations statistics that estimate 30–50% of global food production is wasted (Gustavsson et al., 2011).

Japan has long embraced Mottainai, a concept deeply rooted in Shinto beliefs, which hold that all resources have spirits and should be used with respect (Kawano, 2010). Due to its small island geography, limited resources, and high population density, Japan historically developed a strong appreciation for

conservation, particularly following the economic hardships of World War II (Hasegawa, 2018). However, as modernisation progressed, this sense of resource mindfulness began to fade.

In response, the Japanese government revived the Mottainai philosophy in the late 20th century, integrating it into the "3Rs" campaign—Reduce, Reuse, Recycle—to address the nation's growing waste problem (Ministry of the Environment, Japan, 2000). During Japan's bubble economy era (1980s–early 1990s), rapid increases in plastic production led to severe waste management challenges. Between 1993 and 2000, the number of plastic bottles produced tripled, reaching over 360,000 tons (Ministry of the Environment, Japan, 2000). This prompted government efforts to educate the public about sustainability and responsible consumption.

Japan's advanced waste management system serves as a model for other nations. The Basic Act for Establishing a Sound Material-Cycle Society, enacted in 2000, provides a framework for promoting the 3Rs, with October designated as Japan's official 3Rs Promotion Month (Ministry of the Environment, Japan, 2000). Public and private sectors collaborate extensively with supermarkets and convenience stores installing plastic bottle crushers in exchange for shopping credits. These recycled plastics are repurposed into products such as clothing, carpets, and new bottles (Hasegawa, 2018).

Since 2000, Japan's waste management laws have actively involved citizens, promoting social responsibility and achieving significant success. Only 5% of waste from production and consumption is not reused, largely due to a well-established infrastructure that facilitates waste separation and recycling (Ministry of Economy, Trade, and Industry [METI], 2020). The system also integrates community-level

initiatives like the "One Village One Product" (OVOP) movement, which emphasises self-reliance and sustainability through local wisdom and innovation (METI, 2020). The OVOP model encourages economic sustainability by ensuring product quality, consistent production, and verified market demand (Fujimoto, 2019).

Japan's approach to sustainability, rooted in Mottainai, demonstrates how cultural values can shape effective environmental policies. By embracing conservation and responsible consumption, Japan has become an international model for waste management and sustainability.

#### 2.2.8 Postmodern Theories

Postmodern theories challenge the grand narratives of modernism, emphasising instead the fragmented, the subjective, and the variable. This segment of the paper will explore how the principles of Wabi-Sabi align with postmodern thought, particularly in its valourisation of "imperfect" and "incomplete" as sources of aesthetic value. These theories often question the dominance of 'total' and 'finished' works, advocating for an understanding of art and design that reflects the complexities and inconsistencies of real life.

#### 2.3 Applications in Fashion Design

The influence of Wabi-Sabi in fashion design reveals itself through a growing appreciation for designs that embody natural materials, processes of aging, and visible imperfections, providing a stark contrast to the often pristine and mass-produced qualities typical of the fashion industry. This section examines how three prominent fashion designers—Maison Margiela, Christopher Raeburn, and Marine Serre—incorporate Wabi-Sabi into their work, each embracing the aesthetic in distinct ways.

### 2.3.1 Maison Margiela

The fashion philosophy at Maison Margiela, guided by Martin Margiela, significantly embodies the principles of Wabi-Sabi through a distinct focus on deconstruction and the celebration of imperfections. This approach is evident in Margiela's innovative use of materials and design techniques that highlight the transient and incomplete aspects of fashion items, deliberately showcasing seams, linings, and raw fabric edges that are traditionally hidden (Itacarambi, 2020).





*Figure 14 – Maison Martin Margiela by Martin Margiela. Autumn/Winter 1990-91*

Photo: Kristof Vrancken © Fashion Museum Hasselt/Kristof Vrancken.

Maison Margiela's collections (Fig. 14) often feature reimagined vintage garments and unconventional materials, reflecting a deep appreciation for the aesthetics of decay and the natural aging process. This aligns with Wabi-Sabi's philosophy of finding beauty in the naturally imperfect and ephemeral elements of

life. The designs challenge conventional beauty standards by valourising elements that would typically be seen as flaws, thus redefining what is considered beautiful in the fashion industry (Andò & Caratozzolo, 2020).

Moreover, Martin Margiela's intentional reclusiveness and his decision to let the garments speak for themselves without the influence of designer celebrity embody the Wabi-Sabi ethos of modesty and anonymity. By focusing on the authenticity and the inherent narrative of the garments, Margiela underscores the importance of genuine artistic expression over superficial branding and appearance (Itacarambi, 2020).

Through these design philosophies, Maison Margiela not only challenges the norms of the fashion industry but also promotes a broader cultural appreciation for the imperfect and transient nature of beauty.

This perspective invites a re-evaluation of imperfection, suggesting that it can be seen not as a deficiency but as a fundamental and enriching aspect of creative expression.

### 2.3.2 Christopher Raeburn

Christopher Raeburn's approach to fashion design embodies a profound commitment to sustainability, demonstrated through his innovative use of recycled materials to create high-fashion garments. Raeburn's design philosophy centres on the re-purposing of military fabrics, such as parachutes and uniforms, into stylish, functional clothing. This practice not only reduces waste but also adds historical and emotional depth to his pieces, making each garment uniquely compelling (Townsend & Goulding, 2011).

Raeburn's collections are celebrated for their minimalistic aesthetic and functional design, often reflecting a utilitarian ethos that aligns with contemporary fashion trends. His commitment to sustainability is evident in his strategic use of materials that are typically discarded. By transforming these materials, Raeburn contributes to a new fashion ethos that values ecological responsibility alongside aesthetic appeal. This method challenges the industry's norms and encourages a shift towards more sustainable practices (Townsend & Goulding, 2011).

Moreover, Raeburn's work exemplifies how fashion can bridge the gap between art and utility. His designs are not only wearable but also tell a story of transformation and innovation, highlighting the potential of sustainable practices to redefine luxury fashion. The designer's use of deconstructed army surplus materials assembles a narrative of rescue and reuse, where each piece carries echoes of its utilitarian past while embracing a new, stylish functionality that resonates with a modern audience (Townsend & Goulding, 2011).

Through his creative processes, Raeburn illustrates the potential for high fashion to foster positive environmental impacts, advocating for a model where style and sustainability are not mutually exclusive but are interdependent. This integration of ethical practices with innovative design not only sets a precedent in the fashion industry but also expands the role of design as a catalyst for environmental stewardship (Townsend & Goulding, 2011).

### 2.3.3 Other Prominent Figures in Wabi-Sabi Fashion

The Wabi-Sabi philosophy, which embraces the beauty of the flawed and transient, has significantly influenced a group of renowned Japanese designers. These designers

have skilfully woven this aesthetic into the global fashion scene, challenging the traditional Western emphasis on perfection and permanence.

Yohji Yamamoto



*Figure 15 – Spring-Summer 2024 Collection at The Salons of Hôtel de Ville*

Yohji Yamamoto's Spring-Summer 2024 collection, elegantly presented at the opulent salons of Paris's Hôtel de Ville, stands as a testament to his mastery of avant-garde fashion. Yamamoto, celebrated for his unique approach that consistently challenges the norms of traditional design, infused his latest collection with his signature oversized silhouettes and a distinct emphasis on asymmetry. His use of a subdued colour palette—primarily stark blacks punctuated by the occasional stark white polka dots—echoes the principles of Wabi-Sabi, celebrating the profound beauty found in simplicity and the understated.

This collection marks a pivotal moment in Yamamoto's illustrious career, reinforcing his status as a pivotal figure in the fashion world. The venue, the prestigious Hôtel de Ville, added a layer of grandeur to the event, highlighting its significance in the Fashion Week calendar. Yamamoto's designs gracefully played with the concept of natural fabric wear, integrating the inherent stories of the materials into each piece. This practice aligns beautifully with the Wabi-Sabi philosophy which finds beauty in the imperfections and the marks that time leaves behind.

The event was graced by the presence of notable figures such as Akimoto Kozue, Kiwi Lee Han, and Colm Dilane, who joined a discerning audience captivated by the unveiling of Yamamoto's creations. Each piece spoke volumes about his commitment to a philosophy that embraces the transient nature of beauty, showcasing his ability to weave minimalism and deconstruction into sophisticated, timeless garments. This collection did not just display garments; it narrated a philosophy of life, inviting onlookers to appreciate the elegance in the ephemeral and the imperfect.

Rei Kawakubo

Through Comme des Garçons, Rei Kawakubo has radically altered traditional views on fashion and beauty. Her designs incorporate distressed materials and unfinished edges, challenging established norms and celebrating the transient nature of materials. Kawakubo's creations are a testament to the Wabi-Sabi value of finding strength and beauty in simplicity and the naturally imperfect (Ge, Fu, & Peng, 2023).

Kawakubo's approach was further highlighted in a major exhibition titled "Rei Kawakubo/Comme des Garçons: Art of the In-Between" at The Metropolitan Museum of Art's Costume Institute in New York. This thematic exploration showcased approximately 140 womenswear designs from the early 1980s to the present day. Organised around nine dominant themes, such as Absence/Presence and Fashion/Antifashion, the exhibition examined the ambiguity and transformation inherent in her designs, positioning her garments between established dualisms, thereby challenging and dissolving binary logic in fashion.

The exhibition not only displayed Kawakubo's innovative approaches to fashion but also her philosophical engagement with Zen Buddhist principles. These influences are evident in her use of monochromatic colour palettes and oversized silhouettes, which emphasise voids and volumes that explore the concepts of "mu" (emptiness) and "ma" (space). Through these design principles, she creates pieces that challenge traditional separations, defy classification, and reimagine the female body.



*Figure 16 – Comme des Garçons: Sculptural Vision*

Kawakubo's intuitive approach to fashion design, often beginning with a single word or an abstract image, leads to experimental construction methods that are deeply intertwined with her philosophical ethos. This was evident in her collection inspired by a crumpled piece of paper, showcased under the theme Design/Not Design, highlighting her focus on artistic expression over conventional functionality. This focus is rooted in the Zen Buddhist aesthetic of wabi-sabi, which appreciates the beauty in imperfection and transience (The Metropolitan Museum of Art, 2023).

#### Issey Miyake

Miyake is celebrated for integrating technology with fashion, particularly through his development of pleating techniques that transform simple materials into intricate, sculptural outfits or prints of the wabi-sabi circle as shown in **(Fig. 17)**. This process highlights the natural traits and imperfections of textiles, mirroring the Wabi-Sabi

ethos and showcasing how modern techniques can complement and expand upon ancient philosophies to forge new, sustainable expressions of beauty (Ge, Fu, & Peng, 2023).



Figure 17 – ISSEY MIYAKE MEN 2012

These designers not only redefine fashion but also promote a philosophical shift towards more sustainable and mindful design practices, fostering a deeper appreciation between the clothing and its wearer. Their collective influence marks a significant shift in the fashion industry, where imperfections are not seen as flaws but as deliberate aesthetic and philosophical choices that challenge and enrich the field.

## 2.4 Slow Cinema Principles

Slow Cinema, a cinematic movement that emerged prominently in the late 20th and early 21st centuries, stands as a stark contrast to the mainstream, fast-paced narrative films that dominate much of the global film industry. Characterised by its deliberate pacing, minimalistic storytelling, and often lengthy takes, Slow Cinema offers audiences an alternative way to experience film that emphasises mood, atmosphere, and the viewer's sensory engagement with the narrative. This movement not only challenges conventional filmic techniques but also invites a deeper philosophical engagement with the concepts of time and the viewer's phenomenological relationship with film.

### 2.4.1 Origins of Slow Cinema

Slow Cinema evolved as a notable genre in film during the latter part of the 20th century. Its roots are firmly planted in the reflective styles of European neorealism after World War II and the serene storytelling traditions of East Asian cinema. These influences guided the genre's formation as a deliberate counterpoint to the rapid pacing and compressed timelines typical of mainstream cinema. Filmmakers like Andrei Tarkovsky, Béla Tarr, and Tsai Ming-liang are often credited with shaping the early aesthetics of Slow Cinema by focusing on lengthy takes and the unadorned unfolding of daily life (Jaffe, 2022).

The concept of "Slow Cinema" began to gain traction in academic and critical circles at the start of the 21st century, sparking discussions about its place as a form of cinematic resistance. This resistance wasn't just against the speed of contemporary life but also against the prevalent narrative structures that dominated global cinema. Proponents of Slow Cinema advocate for a return to a more measured viewing

experience, where the audience is given time to engage with the film's narrative depth and visual poetry (De Luca & Barradas Jorge, 2022).

Critiques and analyses of Slow Cinema often emphasise its capacity to induce contemplation and introspection in its audience. The genre elevates seemingly ordinary moments to a level of profound significance, encouraging viewers to ponder broader existential themes. This approach has struck a chord with global audiences, resonating with a growing cultural interest in mindfulness and the experiential quality of art and life. Such themes reflect a societal shift towards valuing the quality of attention and the richness of the present moment (Schneider & Penz, 2022).

Slow Cinema challenges viewers to reconsider their relationship with time and narrative. It invites a slower, more deliberate form of consumption that contrasts sharply with the fast-paced media environment that surrounds us. This genre asks its audience to not just watch a film, but to experience it—to immerse themselves in the unfolding story and connect with its quieter, more reflective rhythm.

#### 2.4.2 Key Theoretical Concepts

The examination of key theoretical concepts within Slow Cinema reveals its distinct approach to filmic storytelling and audience interaction. Central to this genre are two fundamental ideas: Time and Temporality, and Phenomenological Engagement. These concepts deeply influence how Slow Cinema is crafted and experienced, setting it apart from more conventional filmic styles by altering the audience's engagement with both the narrative and the medium itself.

**Time and Temporality** in Slow Cinema extends beyond mere narrative pacing. This concept redefines the traditional use of time in film, encouraging a more meditative interaction with the unfolding story. Films within this genre utilise extended shots and a reduced narrative tempo to intensify the viewer's perception of time, which

shifts focus from plot-driven content to the evocative and often introspective experience of cinematic time itself.

**Phenomenological Engagement** emphasises the tactile and perceptual experiences of the viewer. In Slow Cinema, this engagement is heightened by the genre's characteristic minimalism and deliberate pacing, which draw the audience into a deeper sensory relationship with the film. This method not only enhances the emotional resonance of the cinematic experience but also invites viewers to contemplate their own responses and connections to the visual and auditory elements of the film.

These theoretical underpinnings are critical to understanding how Slow Cinema engages its audiences in unique and profound ways, fostering a cinematic experience that is both introspective and transformative. By delving into these concepts, we can appreciate the sophisticated narrative and aesthetic techniques that make Slow Cinema a compelling genre for those seeking depth and deliberation in their film viewing.

#### 2.4.3 Time and Temporality

Slow Cinema uniquely emphasises time's flow within its narrative framework, extending scenes to lengths that encourage viewers to immerse themselves deeply into each moment. This approach, which foregrounds the duration of each shot, invites contemplation and a meditative response, distinguishing it from mainstream cinematic techniques that often prioritise rapid progression and plot dynamics.

Classics of the genre, such as Andy Warhol's *Empire* and Michael Snow's *La Région Centrale*, challenge traditional viewing habits by focusing intently on static or minimal scenes for extended periods. These films engage viewers in a real-time

experience of time, drawing attention to the act of perception itself and encouraging a reflective engagement with the medium (Çağlayan, 2018).

The slow cinema movement can also be seen as a cultural response to "chronophobia," the anxiety produced by time's relentless passage in contemporary life. By decelerating the filmic rhythm, slow cinema offers a space for viewers to process and reflect on the temporal experience, countering the often overwhelming pace of modern media (Çağlayan, 2018).

Tiago de Luca suggests that the extensive use of long-take enhances the materiality of the cinematic image, promoting a sensory relationship with the film. This method focuses on the aesthetics of duration and presence, enriching the viewer's engagement with the unfolding images (Çağlayan, 2018).

Slow Cinema redefines the engagement with time in film. It shifts the viewer's role from a passive consumer of rapid-fire scenes to an active participant in a temporal and sensory exploration. This genre asks its audience to reconsider their relationship with time, inviting a deeper appreciation of the cinematic art form's ability to encapsulate and manipulate temporal dimensions.

#### 2.4.4 Phenomenological Engagement

Phenomenological engagement in Slow Cinema fosters a deep, sensory interaction with the film, anchoring in the physical presence and duration of its imagery. This approach moves beyond conventional story-driven mechanics, instead crafting an environment where viewers can deeply explore temporal and sensory aspects in a personal way. Such engagement is grounded in phenomenological philosophy, which emphasises direct experiences and the intrinsic qualities of phenomena as they are perceived by the individual.

In Slow Cinema, this translates to a filmic space that functions almost like a contemplative canvas, drawing the viewer into a relationship with both the time and visual structure of the film. This engagement is particularly pronounced in films characterised by prolonged shots and subdued action, shifting focus away from a traditional plot and towards the intricacies of visual and auditory details. These films typically eschew a strong narrative thrust, opting instead to delve into the nuances of everyday experiences and the rich complexity of ordinary moments (Çağlayan, 2018).

Moreover, the use of phenomenological engagement in Slow Cinema often challenges the viewers' expectations and habitual ways of seeing, compelling them to interact with the filmic space and time in new ways. This method aligns with phenomenological theories in philosophy, which emphasise understanding phenomena as they are perceived firsthand, without the preconceptions that typically govern narrative cinema. Thus, Slow Cinema not only alters the spectators' perception of film but also enriches their perceptual and emotional involvement, making each viewing a unique act of discovery and engagement (De Luca & Barradas Jorge, 2021; Flanagan, 2012).

By prioritising these elements, Slow Cinema serves as a critical medium for exploring the depth and breadth of human experience, offering a stark contrast to mainstream cinema's often frenetic pace and plot-driven narratives. It redefines the aesthetic and emotional impact of cinema, making it a powerful tool for philosophical and introspective exploration.

## 2.5 Case Studies of Filmmaking technique in Slow Cinema

In exploring the nuanced realm of Slow Cinema, it's imperative to consider its fundamental defiance against the mainstream cinematic tempo and narrative structures. This genre, as expounded in detailed analyses such as Flanagan's

exploration of temporal aesthetics (Flanagan, 2012) and Barrington's examination of its 21st-century cinematic landscape (Barrington, 2020), underscores a deliberate deceleration in the visual storytelling process. Such a technique is not merely a stylistic choice but a profound commentary on the viewer's engagement with time and narrative.

Béla Tarr, a pivotal figure in this movement, utilises extended takes and minimalistic action to enhance the viewer's immersion into the film's atmosphere, turning mundane moments into a canvas for existential reflection. This method, highlighted in Flanagan's study, transforms passive viewing into an active, introspective experience, where the elongation of scenes prompts a deeper contemplation of life's rhythms and the spaces between events (Flanagan, 2012).

Similarly, Tsai Ming-Liang's works, which Barrington discusses, employ a quietude that borders on the static, turning the camera into an almost contemplative participant in the scene. This approach is not about narrative inertia but about inviting the audience to perceive and internalise the subtleties of human existence and isolation (Barrington, 2020).

My engagement with these methodologies provides a layered understanding of cinematic time and narrative. By applying the principles of Slow Cinema, my work extends these concepts into a broader discourse on how cinema, as a form of art, can manipulate temporal perception to evoke a unique sensory and emotional response. The integration of these slow techniques challenges the viewer's patience and attention, fostering a unique type of viewer engagement that is both challenging and rewarding.

The adoption of Slow Cinema's techniques offers a rich avenue for redefining viewer interaction with film. By extending moments and focusing on the subtleties of human

behaviors and environments, Slow Cinema shifts the narrative experience from escapism to a mirror reflecting the viewer's internal state and temporal perception, enriching the cinematic experience with profound introspective quality.

### 2.5.1 Apichatpong Weerasethakul

The lively world of modern movies features outstanding input from creative filmmakers who push against traditional storytelling and artistic standards. A key figure among these creators is Apichatpong Weerasethakul, a Thai filmmaker known for exploring themes like memory, identity, and the deep links between human life and nature. Recognised in international cinema, Weerasethakul has received much praise for his distinctive style, which mixes documentary and fiction to express important ideas connected to his heritage and local legends.

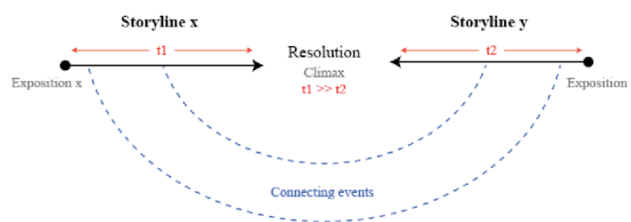


Figure 18 – Non-linear narrative structure in 'Chandra-Padma' book

Apichatpong's films are known for their non-linear storytelling and simple narratives that invite thought instead of immediate grasp. Many experts agree that his work shows a strong connection with spiritual and psychological aspects, often using long shots and natural sounds to draw viewers into a surreal experience. Key films such as "Uncle Boonmee Who Can Recall His Past Lives" and "Cemetery of Splendor" highlight these themes, pulling the audience into a space where reality and fantasy mix. His filmmaking is important not just for entertainment; it acts as a means for cultural

expression and social commentary, touching on topics like displacement, trauma, and the effects of modernisation on Thai traditions.

Available literature shows how Weerasethakul's films resonate on an international scale, placing them in the larger conversation of global cinema. Many scholars point out his role in the Thai New Wave and his success at the Cannes Film Festival, where he has received important awards like the Palme d'Or. Critics and theorists often look at his films from different viewpoints, such as post-colonial theory, queer studies, and environmental perspectives. These varied interpretations highlight the wide appeal of his cinematic style and the layers of meaning that come from his seemingly straightforward plots.

Nonetheless, there are notable gaps in understanding how Weerasethakul's personal history and cultural background shape his storytelling methods. Additionally, research exploring how different audiences perceive and interpret his films across cultures is quite limited. As we prepare to examine the films and key themes that define Apichatpong Weerasethakul's work, this literature review will methodically explore significant aspects of his creations, including his narrative approach, thematic interests, and the socio-political messages in his films.

Apichatpong Weerasethakul, a pivotal figure in New Thai Cinema, crafts films that elegantly dance along the border between the tangible world and mystical realms. His work, rich in personal and universal narratives, challenges the traditional structure of cinema, transforming his films into profound, immersive experiences that

resonate globally. Brett Farmer's insights highlight Weerasethakul's significant impact, marking him as a transformative force in the cinematic world (Farmer, 2006).

"Weerasethakul's films are journeys through time and senses," a statement that rings especially true in his film "Phantoms of Nabua" (2009). This work strays from conventional plots, opting instead for a reflective exploration of lingering memories and conflicts. As part of his 'Primitive' project, it intertwines personal and societal narratives, enriching the film with a cultural depth that resonates on multiple levels (Weerasethakul, 2010).



*Figure 19 – Uncle Boonmee Who Can Recall His Past Lives, Apichatpong Weerasethakul. 2010*

His film "Uncle Boonmee Who Can Recall His Past Lives" not only secured a Palme d'Or but also showcased his signature narrative style that mimics the ebb and flow of memory—fragmented and deeply rooted in the spiritual landscapes of Thailand (Weerasethakul, 2010). Another gem, "Blissfully Yours," unfolds at a deliberate pace, inviting viewers to find enchantment in everyday moments, affirming his belief in cinema's ability to elevate the ordinary to the extraordinary (Farmer, 2006).

Weerasethakul's filmography illuminates his unique approach to cinema, which serves not just as entertainment but as a portal to introspective and transformative experiences. His films are invitations to perceive the world anew, challenging traditional notions of time and narrative.

Apichatpong Weerasethakul's contributions to cinema go beyond mere storytelling; they are profound reflections on life's transient and eternal aspects. By inviting us to explore the depths of memory and cultural identity, he establishes himself not only as a storyteller but also as a guardian of cultural heritage and a pioneer of cinematic innovation.

Apichatpong Weerasethakul's path in filmmaking started in the late 1990s, making him a key player in modern Thai cinema. His early films, featuring dreamlike plots and a close tie to Thailand's rural areas, brought a fresh style of storytelling that shaped his body of work. One of his initial significant films, "Blissfully Yours" (2002), looks at love and connection by mixing everyday life with the fantastical, highlighting memory and perception in human life (Boon-arch S, 2024). After this, "Tropical Malady" (2004) solidified Weerasethakul's distinct voice, showing two opposing stories that connect themes of sexuality and mythology, seen in brief moments of human awareness (Cecilia Mello, 2023). His significant findings on time, memory, and supernatural were clear in his remarkable film, "Uncle Boonmee Who Can Recall His Past Lives" (2010), which won the Palme d'Or at the Cannes Film Festival. This film was a turning point for him as it demonstrated his skill at blending the personal with the metaphysical, influenced by his fascination with animism and Thai culture

(Pádraig Murphy et al., 2021). With "Cemetery of Splendour" (2015), he kept exploring the gray areas of sleep and awareness, showing his ongoing concerns about the body and memory (Dediu E, 2024). Most recently, "Memoria" (2021) shows a further evolution in his style, combining magical realism with a modern look at sound and perception (Spence S, 2017). All these films highlight Weerasethakul's ongoing focus on the layers of memory, identity, and the environment, making a significant impact on the global film scene.

Apichatpong Weerasethakul's films are noted for their focus on memory, history, and the nuances of human experiences. The idea of "phantasmagorical realism" is key to his work, mixing the real and the surreal, allowing the past to blend with the present in detailed ways. This theme shows in "Memoria," where different times connect, reflecting a growing trend in modern cinema that uses the phantasmagorical to uncover deeper cultural meanings (Cecilia Mello, 2023). Weerasethakul's unique storytelling often breaks conventional styles, using a slower rhythm that encourages audiences to think about their own experiences with time and reality (Pádraig Murphy et al., 2021).

Additionally, he often uses nature and rural settings to discuss how people relate to the environment. His films showcase vibrant surroundings that act not just as scenery but as vital parts of the story. This relationship is deeply examined in "Uncle Boonmee Who Can Recall His Past Lives," which links ecological issues to spiritual and ancestral memory (Dediu E, 2024). Critics note that by placing human experiences within these settings, he invites viewers to think about broader socio-

political themes, especially regarding Thailand's cultural identity (Spence S, 2017). Furthermore, Weerasethakul's use of non-linear narratives and a mix of personal and collective memories are signature traits of his films. His work explores the complexities of identity and belonging, often reflecting on past traumas and their ongoing influences on today's society. His films connect with global audiences, crossing cultural barriers and prompting reflections on shared human experiences. Through his unique approach, Weerasethakul has transformed the film world, enriching our understanding of how memory, space, and identity intertwine.

The study of Apichatpong Weerasethakul's films has been viewed through different theoretical lenses, each uncovering various aspects of his art and cultural significance. Semiotic analysis, for example, plays an important role in understanding how Weerasethakul uses symbols and signs to add depth to his stories. This is particularly clear in his films, where themes of memory, identity, and the mix of the spiritual and physical are embedded in the cinematic experience (Boon-arch S, 2024). Scholars using this method have pointed out how Weerasethakul's views on time and space allow viewers to experience a phantasmagorical realism (Cecília Mello, 2023), generating a distinctive interaction between the past, memory, and the now. In addition, some scholars have approached Weerasethakul's films from a postcolonial angle, examining his work in relation to Thai cultural identity and the global film landscape.

This perspective highlights the filmmaker's talent for expressing local experiences while addressing universal themes, as seen in the way his narratives confront Western cinema norms and reflect the intricacies of belonging (Pádraig Murphy et al., 2021).

On another front, eco-critical methods have emerged, looking at the connections between Weerasethakul's stories and the natural environment. This perspective shows his films' strong ties to environmental issues and the portrayal of nature, particularly through Thai folklore and animistic beliefs, contributing to larger discussions about the Anthropocene (Dediu E, 2024). Together, these varied analytical frameworks highlight the richness of Weerasethakul's cinema, encouraging a well-rounded understanding of his films as both artistic expressions and meaningful critiques of society that resonate worldwide. The analysis of Apichatpong Weerasethakul's films draws upon multiple theoretical frameworks, illuminating the complex meanings embedded in his work. Primarily, postcolonial theory provides crucial insights into how Weerasethakul navigates identity, culture, and localisation in a global film context. His films, such as "Uncle Boonmee Who Can Recall His Past Lives," show a deep connection to Buddhist thought and Thai animism, challenging standard narratives through the lens of spiritual and cultural dislocation (Boon-arch S, 2024). This connects with researchers emphasising the role of local stories in counteracting prevalent Western narratives (Cecilia Mello, 2023).

Additionally, Weerasethakul's non-linear storytelling and dreamlike visuals attract the attention of post-structuralist theorists, who argue that meaning is not stable but rather fluid and intricate, stemming from a network of interconnected signs. This viewpoint supports the notion that Weerasethakul's film style disrupts traditional storytelling, encouraging viewers to actively interpret (Pádraig Murphy et al., 2021) (Dediu E, 2024). Furthermore, the use of dreams and memories in his films echoes psychoanalytic theories from Freud, where dreams reveal the unconscious and blur the lines between reality and imagination (Spence S, 2017). Moreover, environmental and eco-critical viewpoints underscore the filmmaker's deep ties to

the natural world, as his films reveal the vulnerability of landscapes and the effects of modernity on indigenous cultures. By connecting these various theories, one can appreciate how Weerasethakul's filmmaking not just challenges aesthetic norms but also engages with broader socio-political and cultural dialogues, making his work rich for theoretical examination. This blend of ideas highlights the significance of Weerasethakul's cinema as both a cultural artifact and a philosophical exploration of memory, identity, and the relationship between humans and nature.

Apichatpong Weerasethakul's work merges cultural identity, memory, and the metaphysical, making him an important figure in modern cinema. This review of literature has pointed out important ideas about Weerasethakul's filmmaking style, showing his special skill in creating stories that are not linear while deeply engaging with themes like spirituality, nature, and complex human experiences. His films feature dreamlike visuals and unconventional storytelling methods that urge viewers to dive into memory and its strong link to our surroundings. This focus on being immersive and contemplative supports the idea that Weerasethakul's work goes beyond just telling stories; it acts as a meditation on life and cultural background.

The review summarises Weerasethakul's exploration of time, identity, and the environment, showing the deep meanings in his stories. His cinematic style challenges Western ideas while enhancing global cinema by showcasing local experiences with a broader perspective. As mentioned in the literature, films like "Uncle Boonmee Who Can Recall His Past Lives" and "Cemetery of Splendour" go beyond national limits, participating in wider discussions about postcolonialism, eco-criticism, and psychoanalysis. As a result, Weerasethakul's contributions to cinema

encourage cross-disciplinary conversations that could enhance both theoretical studies and practical uses in the film industry. However, while the analysis of Weerasethakul's work is strong, there are still limitations in the available literature. Most studies take a heavily theoretical view of his films, leaving out important aspects of how audiences receive and interpret them in various cultural settings. Additionally, although there is a detailed look at thematic elements, there is less focus on the practical effects of these stories and how they may inspire upcoming filmmakers or guide film education. A more complete approach including studies on audience interaction could deepen the conversation about his works.

Future studies could look into how Weerasethakul's filmmaking affects contemporary Thai cultural identity in the context of globalisation, paying attention to how cinema is changing in a fast-evolving world. Researchers might also examine how Weerasethakul's creative methods intersect with new media developments and how digital storytelling could change how his films are viewed. Cross-cultural studies looking at how Weerasethakul's films are perceived outside of Thailand could reveal the universal ideas in his narratives and show how his films connect with varied audiences. In conclusion, this review of literature emphasises Weerasethakul's innovative cinematic methods and thematic richness, positioning his work in important global discussions and affirming its lasting importance. By addressing current gaps and suggesting specific paths for future research, we can enhance our understanding of Weerasethakul's contributions, which continue to challenge and motivate in film, culture, and theory.

### 2.5.2 Béla Tarr

The cinematic landscape has witnessed a plethora of visionary filmmakers, each contributing uniquely to the evolution of film as an art form. Among these luminaries, Béla Tarr stands out for his distinctive narrative style, rich visual aesthetics, and philosophical underpinnings that challenge viewers' perceptions of reality and time. His work, particularly known for its long-take and minimalist storytelling, invites audiences to engage deeply with the subtleties of human existence and the complexities of societal decay. The significance of Tarr's oeuvre lies not only in its artistic merit but also in its capacity to provoke thought and evoke emotions, thus reshaping traditional narratives within cinema. Existing literature on Béla Tarr predominantly focuses on his hallmark films, such as "Satantango" and "The Turin Horse," which exemplify his innovative approach to storytelling and time manipulation. Scholars have noted how Tarr's use of extended shots and sparse dialogue compels the audience to confront the weight of stillness and the intricacies of human relationships in the face of desolation. Furthermore, themes of existentialism, alienation, and the cyclical nature of life permeate his films, establishing a profound commentary on the human condition. Critics such as Jonathan Rosenbaum and A. O. Scott have lauded Tarr's cinematic language, emphasising its ability to transcend cultural and temporal boundaries, making his work relevant in contemporary discussions of film theory and practice. Despite the critical acclaim and scholarly attention, there remain notable gaps in the literature regarding Tarr's influence on future filmmakers and the broader implications of his techniques within the global cinematic context. While there has been some exploration of regional influences, such as the Hungarian socio-political backdrop that informs his narratives, a comprehensive analysis of how his work interacts with, and possibly shapes, the aesthetics of modern cinema remains underexplored.

Additionally, the intersections of Tarr's filmmaking with contemporary issues, such as climate change and social disintegration, invite further scholarly inquiry, offering a richer understanding of his relevance in today's world. Moreover, there is a lack of a consolidated framework that addresses the specific mechanisms through which Tarr's unique cinematic methods cultivate audience engagement and provoke emotional resonance. As viewers increasingly seek meaningful connections with films, understanding Tarr's techniques offers valuable insights for filmmakers and scholars alike, highlighting the significant role of narrative style in cinematic communication.

In light of these observations, the current literature review aims to provide a comprehensive examination of Béla Tarr's contributions to cinema, addressing the existing scholarship while identifying key themes, findings, and avenues for future research. Central to this exploration will be an assessment of how Tarr's filmic innovations challenge conventional storytelling and invite a reevaluation of the viewer's experience. By collating various perspectives and critiques, this review aspires to illuminate the rich tapestry of Tarr's work and situate his legacy within the broader discourse of film studies, ultimately contributing to a deeper understanding of the interplay between cinematic form and thematic depth.

The evolution of Béla Tarr's cinematic oeuvre reflects a profound engagement with narrative structure, aesthetic form, and philosophical underpinnings. Early works, such as "Family Nest" and "The Prefab People," established his signature style, characterised by long-take and a contemplative pace, which critics argue challenge traditional cinematic storytelling (A Koutsourakis, 2023), (A Koutsourakis et al., 2023). This foundation laid the groundwork for his later masterpieces, such as "Satantango" and "The Turin Horse," where Tarr expanded on themes of existential despair and the

cyclical nature of life (Rogério de Almeida, 2018), (Boczkowska K, 2024). Critics have noted that these later films exemplify Tarr's commitment to an intricate, almost hypnotic visual language, which evokes a visceral response in audiences while simultaneously prompting reflections on the human condition (C Orban, 2020).

In analysing Tarr's work, scholars have highlighted how his films function as meditations on time and memory, often drawing parallels with philosophical ideas from figures such as Heidegger and Bence Nanay (Bradi Mć, 2024). This intellectual engagement lends depth to the filmmaker's oeuvre and invites viewers to consider the implications of viewing cinema as a medium that transcends mere storytelling (Rocamora I, 2023). Furthermore, Tarr's partnerships with prominent cinematographers and sound designers have been pivotal in crafting the aesthetic experience; their collaborations have resulted in striking visual compositions that linger in the viewer's mind long after the screen fades to black (Naeim M, 2017), (Kemal ÇELİK, 2023). As Béla Tarr's body of work continues to elicit scholarly attention and provoke critical discourse, it remains clear that his innovative contributions have permanently altered the landscape of contemporary cinema (J Scott B, 2022). The exploration of Béla Tarr's cinematic language reveals a profound engagement with themes of time, existentialism, and the human condition. Notably, Tarr's use of extended takes has been widely discussed as a technique that allows viewers to immerse themselves in the weight of time itself, emphasising the slow passage of moments that reflect the existential weight of his characters' experiences (A Koutsourakis, 2023), (A Koutsourakis et al., 2023). Scholars have highlighted how this method not only creates a meditative viewing experience but also serves to challenge conventional storytelling, positioning the audience as active participants in the unfolding narrative (Rogério de Almeida, 2018). Furthermore, the recurring motif of bleak landscapes in Tarr's films has been interpreted as a reflection of desolation

and the inevitability of fate, contributing to the overall atmosphere of despair and contemplation (Boczkowska K, 2024), (C Orban, 2020). This visual aesthetic reinforces the themes of isolation and the cyclical nature of existence, as characters grapple with their circumstances in a seemingly indifferent world (Bradi Mć, 2024). Critics have also emphasised the significance of sound design in Tarr's work, noting that the sparse use of dialogue along with haunting ambient sounds enhances the emotional resonance of the visuals (Rocamora I, 2023), (Naeim M, 2017).

The interplay of image and sound deepens the viewers' engagement with the protagonists' internal struggles, illustrating the complexity of human emotions and connections. Through these thematic lenses, Tarr's films emerge as profound meditations on human experience, inviting viewers to confront the existential questions that permeate his narratives while also challenging traditional cinematic conventions (Kemal ÇELİK, 2023), (J Scott B, 2022). This multifaceted approach makes his body of work a compelling subject for ongoing academic inquiry and analysis. The exploration of Béla Tarr's cinematic style reveals a rich landscape shaped by various methodological approaches. Scholars have highlighted the significance of Tarr's distinctive use of long-take, which is often interpreted through both formalist and realist lenses. According to (A Koutsourakis, 2023), his long-take are not merely stylistic choices; they serve to immerse the viewer in the temporal and spatial dimensions of his narratives, reinforcing a sense of existential contemplation. This notion is further supported by (A Koutsourakis et al., 2023), who posits that the architectural and contemplative nature of Tarr's films prompts audiences to engage with the characters on a deeper emotional level, thus intertwining narrative and form. Additionally, other researchers have focused on the philosophical implications of Tarr's works. (Rogério de Almeida, 2018) illustrates how Tarr draws upon existentialist themes, suggesting that his films often reflect a bleak yet profound

understanding of human suffering, as articulated through minimalist dialogue and ambient soundscapes.

This philosophical approach is complemented by (Boczkowska K, 2024), who emphasises the influence of Hungarian history on Tarr's narratives, arguing that his methods convey a sense of place and time that is steeped in cultural memory. The interplay of these methodologies creates a multifaceted understanding of Tarr's oeuvre. For instance, (C Orban, 2020) integrates psychoanalytic theories to interpret characters' internal struggles, indicating that such approaches can enrich the analysis of Tarr's complex portrayals of human emotion. Moreover, the examination of socio-political contexts, as articulated by (Bradi Mć, 2024), reveals how Tarr's films reflect broader societal conditions, demonstrating that methodological diversity can yield a more nuanced appreciation of his work. Collectively, these varying approaches illustrate the complexity and richness of Béla Tarr's cinema, underscoring the importance of methodological pluralism in film studies. The nuances of Béla Tarr's cinematic oeuvre have attracted a multitude of theoretical interpretations that highlight his unique narrative and stylistic approaches. Central to many discussions is the notion of time in Tarr's films. Scholars argue that his long-take and minimal edits serve not only as a stylistic choice but also as a philosophical meditation on the nature of existence and human suffering (A Koutsourakis, 2023), (A Koutsourakis et al., 2023).

This perspective aligns with existential theory, which seeks to explore the profound complexities of life while often portraying an indifferent universe, a theme prevalent in Tarr's work (Rogério de Almeida, 2018). In contrast, other critics embrace a more socio-political framework, emphasising how Tarr's films reflect and critique the socio-economic realities of post-communist Hungary. This viewpoint posits that his bleak landscapes and the recurring motif of despair serve as a commentary on the collective trauma experienced by society (Boczkowska K, 2024), (C Orban, 2020). By examining the cultural context of his narratives, these interpretations invoke both Marxist and post-colonial theories, suggesting that Tarr's visual language articulates the struggles of marginalised communities in a rapidly changing political landscape. Furthermore, the interplay between form and content is another critical area of exploration. Scholars note how Tarr's deliberate pacing and focus on mundane realities are essential in shaping viewer perception and emotional engagement, blurring the lines between narrative and documentary (Bradi Mć, 2024), (Rocamora I, 2023). This approach correlates with theories of realism in cinema, which advocate for an authentic representation of life. Thus, the varied theoretical perspectives do not contradict but rather enrich the understanding of Tarr's complex body of work, revealing the intricate web of meaning embedded within his films. Overall, the synthesis of these critical frameworks contributes to a more comprehensive view of Béla Tarr's artistry, underscoring the multiplicity of interpretations that his films continue to inspire.

The examination of Béla Tarr's cinematic oeuvre has revealed a rich tapestry of philosophical, aesthetic, and social dimensions that underscore his significance in contemporary film studies. Key findings indicate that Tarr's distinctive use of long-take, and minimalist narrative structures profoundly affect viewer engagement, prompting audiences to immerse themselves in the existential weight of the characters' experiences. His films serve not only as artistic expressions but also as meditations on themes of time, memory, and the human condition, echoing various philosophical inquiries into existence and alienation. As reflected in the literature, Tarr's works are characterised by a deliberate pacing that compels the viewer to confront moments of stillness, ultimately challenging conventional storytelling methods and encouraging deeper contemplation of the cinematic experience. The review reaffirms the primary theme that Béla Tarr's filmmaking transcends mere visual artistry, advocating for a holistic understanding of his work through the interplay of form and content. By situating his films within the context of existential philosophy and socio-political critiques—especially reflecting on the complexities of post-communist Hungary—Tarr's oeuvre emerges as a poignant commentary on both individual and collective trauma. The discussions highlighted in the literature reveal a critical engagement with his stylistic choices, emphasising how they create a meditative atmosphere ripe for philosophical inquiry. Broader implications of these findings suggest a need to reevaluate how filmmakers can wield cinematic techniques to evoke emotional and intellectual responses in their audiences. In an era where cinema grapples with both storytelling and viewer engagement, Tarr's innovative approach exemplifies how the combination of minimalist dialogue, striking visual compositions, and immersive sound design can foster a more profound connection to themes of despair and resilience. This relevance extends beyond the realm of film critique; it offers valuable insights for contemporary and future

filmmakers seeking to navigate the complexities of narrative and viewer interaction. Despite the richness of the existing literature, several limitations persist. Much of the scholarship tends to focus predominantly on certain hallmark films—such as "Satantango" and "The Turin Horse"—while leaving gaps in the examination of his lesser-known works and their contributions to his overall cinematic language. Moreover, the literature often overlooks the implications of Tarr's influence on emerging filmmakers, particularly within the global cinematic landscape. Therefore, future research could benefit from exploring the interplay between Tarr's stylistic elements and contemporary filmmaking practices, as well as investigating the cultural and political contexts that inform his narratives in wider settings. In summary, this review underscores the multifaceted nature of Béla Tarr's contributions to cinema, urging a dialogue that encompasses philosophical, aesthetic, and socio-political lenses. By critically engaging with his unique narrative style, viewers and scholars alike can uncover deeper meanings that resonate within the fabric of his films, thus ensuring that Tarr's influence will be felt for generations to come. Continued exploration of these themes offers promising avenues for advancing academic discourse and enriching the understanding of cinema as a profoundly reflective art form. In my journey through Béla Tarr's filmography, I've cultivated a deep appreciation for his singular approach to storytelling through cinema, which profoundly encapsulates the human ethos via his unique visual and narrative articulation. His body of work, defined by its protracted shots and contemplative tempo, invites viewers into an immersive tableau of visual and emotional landscapes, imbuing a philosophical resonance that challenges traditional cinematic constructs (Stellino, 2021).

Tarr's exploration of slow noir—a fusion of film noir elements with his distinctive style—creates meditative narratives steeped in existential introspection and metaphysical ponderings. In works such as *Damnation* and *The Man from London*, the narrative milieu is shaped by the camera's deliberate motions and the characters' minimalistic yet resonant actions, augmenting the narrative's existential weight (**Fig. 20**). This austere, often bleak aesthetic complements and deepens the philosophical themes, inviting reflections on destiny, solitude, and the essence of human existence (Barrowman, 2024).



Figure 20 – *The Man from London*

(Source: [Film still]. (2007). Retrieved from <https://www.imdb.com/title/tt0410730/>)

Moreover, my analysis discerns the integration of geographical and ecological dimensions in Tarr's films, which adds layers of complexity by intertwining the physical environment with the psychological and existential challenges of the

characters. This method not only highlights Tarr's profound connection to his filmic landscapes but also amplifies his critique of human impacts on nature, resonating with broader ecological and philosophical dialogues (Orban, 2021).

Through scrupulous scrutiny of the settings—both indoor and outdoor—depicted in Tarr's cinematography, I perceive these spaces not as mere backdrops but as integral to the narrative, reflecting the protagonists' inner conflicts and the existential themes pervading his work. These settings, often portrayed as desolate and forlorn, mirror the characters' solitude and despair, thus enriching the slow cinema experience with a profound sense of place and temporality (Stellino, 2021).

Béla Tarr's oeuvre, particularly his interpretation of slow noir, offers a potent lens through which to examine not just the aesthetics of film but also the existential and philosophical questions that vex contemporary society. His films encourage a reflective engagement, prompting audiences to ponder deeper meanings of existence and the human experience.

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### 2.5.3 Andrei Tarkovsky

Andrei Tarkovsky's impact on film is not just a continuation of traditional filmmaking; it is a deep look at what it means to be human, shown through a unique visual and philosophical approach. Famous for his carefully designed images and serious themes, Tarkovsky's movies have become a major point of interest for both scholars and film lovers. His unique style—characterised by long-take, creative use of nature, and complex storylines—requires careful consideration that goes beyond typical artistic review. This analysis highlights the importance of Tarkovsky's style innovations within the wider frameworks of film theory, examining how his special methods have changed and challenged traditional storytelling and cinematic expressions.

The importance of Tarkovsky's films is highlighted by common themes of spirituality, memory, and time, which he explores using various visual and auditory methods. Scholars see links between his creative choices and philosophical thoughts, claiming that his films act as reflective spaces for viewers, encouraging deep thought and engagement with existential issues. Major films like "Stalker," "Solaris," and "The Mirror" showcase his skill in blending visual art with deep philosophical dialogue,

offering a cinematic experience that goes beyond just surface understanding. Current literature shows a strong appreciation for Tarkovsky's dedication to visual storytelling, emphasising how image, sound, and narrative interconnect as essential parts of his filmmaking style. Though there is much discussion on Tarkovsky's techniques, there are still important gaps in fully understanding his work, especially its effect on modern filmmakers. While existing literature presents valuable critiques and analyses of individual films, there is a shortfall in comprehensive studies examining how his techniques have influenced filmmakers globally and changed storytelling methods in today's cinema. Furthermore, Tarkovsky's engagement with advancements in technology, including changes in film editing and the rise of digital media, needs more exploration, as it could reveal new insights into relevance in today's fast-evolving visual world. Additionally, while many have evaluated the artistic aspects of his films, fewer have looked into the socio-political contexts that shaped his work. A closer examination of these backgrounds could shed light on the motivations behind Tarkovsky's stylistic decisions, enriching the conversation around his legacy.

This literature review aims to compile existing studies while addressing these missing pieces by exploring the detailed relationships between Tarkovsky's filmmaking techniques and larger cultural and historical stories. In conclusion, Tarkovsky's film techniques are crucial to his storytelling and help audiences confront some of the deepest questions of humanity. As this review progresses, it will consider the most impactful elements of his artistry, investigate ongoing discussions in academic circles, and point out possible research directions that could clarify Tarkovsky's significant influence on the world of cinema.

The study of Andrei Tarkovsky's film methods have changed a lot over time, showing his special role in film art. Early research aimed to pinpoint Tarkovsky's style, focusing on his long-take and thoughtful images that made him unique in Soviet cinema. Scholars like (D Jurafsky et al.) and (Kousoulas S et al., 2024) pointed out the philosophical ideas in his films, linking his style to bigger existential ideas found throughout his works. As more discussions evolved, researchers like (Kemal ÇELİK, 2023) and (Fedorov A et al., 2023) looked deeper into how his life in the USSR shaped his storytelling and visual style. As digital technology grew, later studies took a broader approach, looking into how Tarkovsky's techniques blend with today's filmmaking. Academics including (Ili Vc, 2024) and (Lyubov D Bugaeva, 2024) noted how his legacy lives on with modern filmmakers, positioning his ways as a link between classic and experimental cinema. A close look at films like "Stalker" and "Mirror" shows how Tarkovsky's use of time and deep imagery creates unique narrative tools, as described in the work of (S Sidorova, 2023) and (Globan IS et al., 2023). Recent research has examined the technical side of his art, explaining his creative use of colour and sound that adds meaning past what we see (Ferrari R, 2025) (Arslan E et al., 2024). This timeline display shows how complex Tarkovsky's film techniques are and how they are still viewed differently as film studies evolve.

The study of Andrei Tarkovsky's film methods show a few connected themes that highlight his creative vision. One main idea is the concept of time, which he skillfully manipulates in his films, taking his time with stories to inspire thought. This approach, emphasised in studies, underlines how his long-take and few cuts challenge usual pacing, drawing audiences into a reflective space (D Jurafsky et al.) (Kousoulas S et al., 2024). Scholars suggest that this method not only mirrors Tarkovsky's philosophical ideas but also touches audiences deeply on an emotional

level (Kemal ÇELİK, 2023). Another key idea is how he uses nature and visual symbols to express existential themes.

Tarkovsky's films often feature rich natural settings that highlight human struggles, helping viewers see personal issues in a broader context (Fedorov A et al., 2023). Critics have identified that this relationship between the natural and the metaphysical adds depth, making visual elements as impactful as the dialogue (Ili Vć, 2024) (Lyubov D Bugaeva, 2024). Moreover, spirituality is a vital aspect of Tarkovsky's filming style. He frequently integrates religious symbols and ideas that reflect his focus on the beyond, inviting viewers to connect with spiritual themes (S Sidorova, 2023). Research shows that blending the sacred with the ordinary creates a sharp contrast that urges deeper thought about faith and human experience (Globan IS et al., 2023) (Ferrari R, 2025). Through these thematic studies, Tarkovsky's film methods appear as detailed tools that not only narrate stories but also prompt serious reflection on existence.

The study of Tarkovsky's film methods has led to various research strategies that expose the details of his cinematic art. Scholars have conducted style analyses, often concentrating on Tarkovsky's unique use of time and space as core aspects of his storytelling. In studies of his long-take, some researchers argue that these prolonged scenes foster a meditative experience that allows viewers to connect deeply with characters, thereby challenging traditional film pacing (D Jurafsky et al.) (Kousoulas S et al., 2024). Furthermore, the philosophical core of Tarkovsky's work, especially concerning spirituality and transcendence, has been widely explored using methods focusing on the viewer's real-life experiences and existential thoughts

during the movie (Kemal ÇELİK, 2023) (Fedorov A et al., 2023). Conversely, some researchers take a historical lens, placing Tarkovsky's methods within the larger narrative of Soviet cinema and its ideological limits. This approach reveals how his stylistic choices often acted as resistance against propaganda, shining a light on the political aspects of his films (Ili Vć, 2024) (Lyubov D Bugaeva, 2024). Also, comparative studies show how Tarkovsky has influenced future filmmakers, highlighting the lasting effects of his techniques on modern cinema (S Sidorova, 2023) (Globan IS et al., 2023). Meanwhile, text analyses have looked at the interaction of images and sound, suggesting that Tarkovsky's sound design enhances his visual storytelling, enriching the viewer's interpretation (Ferrari R, 2025) (Arslan E et al., 2024).

Overall, the varied research methods on Tarkovsky's film technique highlight the complexity of his artistic legacy, showing deep engagement with topics like time, memory, and spiritual inquiry that still resonate today in film studies.

The examination of Tarkovsky's film methods provides a rich ground for diverse discussions, showcasing different viewpoints that reveal the details of his art. A key topic in examining Tarkovsky's films is the metaphysical element that influences his storytelling and visual style. Scholars have pointed out that "time" is a crucial feature of his films. Many argue that Tarkovsky's control of time invites viewers to reflect. This idea is supported by (D Jurafsky et al.) and (Kousoulas S et al., 2024), asserting that time in Tarkovsky's films is not only a narrative tool but also a means for existential thought. In contrast, some critics question the idealised view of his style, suggesting that his focus on spirituality might overshadow his technical skills.

For example, (Kemal ÇELİK, 2023) and (Fedorov A et al., 2023) critique the difficulties of maintaining narrative clarity within his abstract style, arguing that this may alienate audiences. Furthermore, Russian formalism plays an important role, as (Ili Vć, 2024) discusses how Tarkovsky's approach to cinematography and sound showcases the expressive power of film. This aligns with views from (Lyubov D Bugaeva, 2024), who situate Tarkovsky's methods within a larger context of post-war cinematic movements that emphasise visual art and immersive experiences. The mix of these theoretical viewpoints underlines the diverse aspects of Tarkovsky's film techniques, where metaphysical topics exist alongside detailed technical discussions. Together, these insights not only deepen the understanding of Tarkovsky's impact on cinema but also spark conversations about how theory helps explore the complexities of art. The balance of philosophical ideas and practical application reflects the ongoing discussion regarding the importance of Tarkovsky's film legacy.

The study of Andrei Tarkovsky's movie techniques show a complicated view of his artistic ideas, changing how cinema is understood. Key points from research highlight Tarkovsky's creative use of long-take, thoughtful compositions, and themes about existence that engage viewers in deep thought about the story. These techniques mirror his philosophical explorations of time, memory, and spirituality while also forming strong emotional ties between the audience and the film's questions about existence. Researchers have pointed out that Tarkovsky's storytelling goes beyond normal film boundaries, allowing for deep reflection that strongly connects with viewers. The main idea of this review is that Tarkovsky's art displays a

complex relationship between form and content, where visual beauty and philosophical ideas exist together. The review includes several methods of analysis, each adding to a deeper understanding of how Tarkovsky's techniques challenge traditional storytelling and connect with wider existential topics.

This collection confirms Tarkovsky's important role in Soviet cinema, as well as highlighting his influence across different cultures and time periods, shedding light on the shared human experience. Tarkovsky's techniques also influence modern filmmaking, seen in contemporary directors who deal with similar themes and styles. This interaction suggests that engaging with Tarkovsky's work can guide present-day filmmaking, particularly in art-house and independent films. Tarkovsky's emphasis on the relationship between image and sound and his narrative style encourages directors to think about how film language can create sensory and emotional reactions, pushing them to explore more profound metaphysical questions in their own stories.

However, some limits in the existing literature about Tarkovsky's techniques are noticed. Much of the current research focuses on single films or certain themes, which can lead to a mixed understanding of its overall effect on cinema. While Tarkovsky's artistic and philosophical impacts are well noted, there is a lack of thorough studies exploring his influence regarding the digital age and visual storytelling's changes in modern film. Future studies might explore these areas, especially how Tarkovsky's techniques could be modified or reinterpreted through new technological contexts. Also, taking a closer look at the social and political backgrounds that shaped Tarkovsky's work could provide more understanding of his narrative choices and key themes. Factors such as the historical and cultural impacts

of Soviet cinema in Tarkovsky's time, along with contemporary global film trends, offer rich possibilities for research. By addressing these areas, future studies can further clarify Tarkovsky's lasting influence, laying a theoretical base and practical insights for the ongoing study of film. In summary, the combined insights from the existing literature not only reaffirm Tarkovsky's importance in film history but also expand our grasp of cinema as a detailed art form. His work continues to challenge and motivate both filmmakers and researchers, making Tarkovsky's films crucial for ongoing examination and discussion in the film industry.

Upon pondering Tarkovsky's profound engagements with time and spirituality in his films, it's apparent how his philosophical and aesthetic explorations resonate deeply with my academic focus. As Kristin Kreider and James O'Leary articulate in their discourse on the poetics and phenomenology of Tarkovsky's cinematic image, his work, particularly in films like *Nostalgia*, embodies a meticulous blend of the poetic, spatial, and material properties within each frame (Kreider & O'Leary, 2013).

Tarkovsky's own writings, especially as examined in *Sculpting in Time*, reveal his nuanced understanding of the film image as a complex and potent amalgamation of these elements, capable of conveying profound philosophical truths about human existence and the temporal experience. His approach to the cinematic narrative, through long-take and a focus on atmospheric elements, not only heightens the sensory reception but also imbues his films with a timeless, spiritual quality that challenges the viewer's perception of reality and time.

Diana Ivanycheva's analysis in *Painting in Time* further underscores Tarkovsky's innovative use of historical paintings to delve into cinematic temporality and spirituality. Her exploration of how Tarkovsky integrates artworks by Andrei Rublev,

Pieter Bruegel, and others into his films highlights his method of linking temporal and spiritual contemplation with visual artistry. This intermingling of the visual arts within cinematic space allows Tarkovsky's films to transcend traditional narrative structures, offering instead a meditative reflection on time, memory, and existential solitude (Ivanycheva, 2019).



Figure 21 – *Pressure on Time, a man struggling to light a candle: Nostalgia (1983)*

These scholarly insights significantly enrich the understanding of Tarkovsky's artistic legacy and provide a robust theoretical framework for analysing his unique treatment of time and imagery. *“Give a shot enough time, and meaning will be formed of its own accord, but too many cuts can disrupt this.”* (Tarkovsky) By incorporating their findings into my own work, I can further elucidate the intricate ways in which Tarkovsky's films function as more than mere narratives—they are profound explorations of the human condition through the lens of temporal and spiritual awareness.

#### 2.5.4 Akira Kurosawa

Akira Kurosawa, a craftsman of cinema, paints narratives that delve profoundly into the human ethos. His filmic creations, notably "Seven Samurai" and "Rashomon," transcend mere storytelling; they are forays into the complexities of moral existence and human integrity, crafted with a precision that elevates them into realms of philosophical inquiry.

Kurosawa's cinematic landscape is a tapestry where the tumults of destiny and ethics are portrayed with stirring authenticity. Each film is a journey, an evolving exploration that invites the viewer to navigate through layered narratives and rich character portrayals. This narrative depth in Kurosawa's work profoundly shapes my academic focus, especially in understanding how complex human emotions can be encapsulated within structured narrative forms (Kurosawa, 1980).

"Rashomon" exemplifies Kurosawa's innovative narrative approach, where he utilises multiple perspectives to challenge the viewer's conception of truth. This storytelling technique not only questions the veracity of perception and memory but also engages the viewer in a philosophical dialogue about the nature of reality—a reflective inquiry that resonates deeply within my own research (Kurosawa & Richie, 1987).

Kurosawa's portrayal of characters is a study in-depth, and complexity—reflecting a spectrum of human emotions and ethical dilemmas. This nuanced character development enhances the viewer's emotional engagement, bridging cultural and temporal divides, and offering a universal message on the human condition.



*Figure 22 – Seven Samurai, Akira Kurosawa, 1954*

Furthermore, Kurosawa's adept use of environmental motifs—such as the persistent rain in "Rashomon" or the sweeping winds in "Seven Samurai"—acts not merely as scenic elements but as metaphors that mirror the narrative's emotional landscape and thematic depth. This technique of aligning narrative content with symbolic environmental cues deepens the cinematic experience, enriching my exploration of how visual storytelling can be seamlessly integrated with narrative content to enhance emotional resonance (Galbraith IV, 2002).

Immersing in Kurosawa's films has profoundly informed my understanding of film as a medium of introspection and emotional engagement. His works demonstrate the power of cinema to not just tell stories but to evoke reflection, challenge perceptions, and connect deeply with an audience's innermost thoughts.

Filmmaking is a complex field that includes many techniques, all of which improve storytelling. Few directors have shown a command of these techniques like Akira Kurosawa. He is famous for his creative ways of telling stories and arranging

visuals. Kurosawa's work reflects Japan's cultural and historical background while also pushing the limits of world cinema. His distinct techniques, such as cutting on motion, using wipe transitions, and combining images with sound, greatly enhance the emotional weight of his films. It is important to explore these techniques because they help create a stronger bond with the audience, leaving a lasting impact that shapes today's filmmakers and scholars.

There is a lot of written work about Kurosawa's unique style, focusing especially on his innovative use of cutting on motion. This method allows for smooth transitions between shots, creating a lively visual rhythm that improves storytelling. Experts have observed that this technique captures the action's speed and highlights the characters' emotional states, as shown in films like **Seven Samurai** and **Throne of Blood**.

Kurosawa's use of wipe transitions is another key feature of his style. He borrowed this technique from traditional Japanese art. This transition works in two ways: it helps change time and space while supporting the story's themes. Analyses indicate that these transitions are not just decorative choices; they are crucial to the story's structure, letting viewers easily shift their focus. In addition, Kurosawa's application of image-sound counterpoint adds more depth to his storytelling. By placing contrasting sound and visual elements side by side, Kurosawa generates a dissonance that enhances the viewing experience, prompting reflection and emotional reactions. This technique can be seen in his notable films, where the sound often conveys a different message or feelings than the images, uncovering deeper insights into the characters and situations. Various scholars have pointed out

that this intentional mismatch encourages active viewer engagement, leading to a more captivating connection with the story.

Despite the significant research on Kurosawa's filmmaking methods, there are still gaps in understanding the broader effects of these techniques on modern filmmaking. While existing studies offer important insights into his style, there is a clear absence of detailed analyses on how these techniques can be used or modified in today's films. Additionally, more research is necessary to explore the cultural exchange between Kurosawa's techniques and the global film industry, especially regarding how his methods have affected directors worldwide.

This literature review will show that a detailed study of Kurosawa's filmmaking techniques not only reveals his creative brilliance but also paves the way for further exploration of the ongoing changes in cinematic language. Later sections will take a closer look at each of these essential techniques—cutting on motion, wipe transitions, and image-sound counterpoint—emphasising their special uses, effects, and the insights they offer about Kurosawa's main themes. Through this analysis, we aim to deepen our understanding of Kurosawa's impact and his significant role in the art of filmmaking.

Akira Kurosawa's filmmaking methods have changed a lot since the mid-20th century, showing how he skillfully mixes visuals and storytelling depth. In his early films, Kurosawa used cutting methods that highlighted the emotional weight of scenes through careful placement. Movies like "Rashomon" (1950) stand out for his creative editing style, where the use of wipes became central to transitions, making the narrative more complex by showing different views of the truth. His way of tying

sound with visuals created a new kind of image-sound balance, helping viewers connect emotionally with the story rather than just following the plot linearly.

As he moved forward in his career, Kurosawa kept improving these methods. In "Seven Samurai" (1954), the editing pace matched the tension of the story, using quick cuts during action scenes and longer takes for reflective moments. This pacing not only built drama but also encouraged a deeper look at character motivations and relationships, showing a change toward a more intense style of editing (Redfern N, 2022) (Diolez N, 2014). By "Ran" (1985), Kurosawa had added layers of complex visual elements, showing growth in his use of colour, composition, and sound that were not seen in his earlier works. The sound design in "Ran" further highlighted the emotional and thematic aspects of the story, using counterpoint techniques to enrich the viewer's experience (Diolez N, 2014) (Kurosawa A, 2021).

In short, Kurosawa's filmmaking journey reveals an ongoing exploration of techniques that merge narrative, editing, and sound, creating a rich foundation for understanding his impact in both Japanese and international cinema. Akira Kurosawa's filmmaking methods are recognised by different techniques like cutting during motion, using wipes, and creating sound-image relationships. His handling of time and space through cuts, especially in key action moments, emphasises a fast-paced rhythm that enhances the story's tension and emotional connection. This is clear in films like "Seven Samurai," where his energetic cuts help make smooth transitions between scenes while keeping a sense of flow (Z Lissa et al., 2020). His cutting method not only improves visual storytelling but also supports character development and plot advancements, as seen in studies about his editing (Z Lissa et al., 2020).

Additionally, Kurosawa's use of wipes as a transition technique sets his work apart, adding to a distinctive visual style that merges traditional Japanese art with modern film techniques. Wipes work both practically and artistically by helping change scenes while reflecting theme shifts in the story (Redfern N, 2022). These transitions promote an uninterrupted storytelling experience that connects various elements, enhancing viewer immersion. Furthermore, the relationship between sound and image in Kurosawa's works shows his skill in audio-visual dynamics.

The balancing of sound and visuals deepens the emotional impact of his films, allowing viewers to gain a layered understanding of the story. For instance, in "Rashomon," the mix of different character views, emphasised by audio-visual contrasts, highlights the complexity of truth and recollection (Magalh Fães, 2023). This blending of visuals and sound not only pushes the plot forward but also deepens viewer engagement with the themes, showcasing Kurosawa's innovative impact on cinematic language (Kurosawa A, 2021). Kurosawa's filmmaking methods have led to much scholarly interest, particularly around his creative editing and the relationship between image and sound. One approach focuses on the idea of cutting on motion, which Kurosawa skillfully used to create smooth action scenes, increasing viewer interest. This method allows scenes to keep a continuous rhythm that energises the story, as shown in classic films like "Seven Samurai" and "Yojimbo," where movement influences the cut timing, creating a lively viewing experience (Magalh Fães, 2023) (Z Lissa et al., 2020).

Furthermore, the use of wipes as a transition tool in Kurosawa's films is another key point of interest. Wipes, often ignored for more standard cuts, create a unique visual style that supports narrative transitions while maintaining narrative momentum (Redfern N, 2022). This technique is not just for aesthetics; it shapes the viewer's experience of time and space in the film, providing a deeper insight into character development and thematic elements (Magalh Fães, 2023). Lastly, experts have also highlighted Kurosawa's creative use of sound-image counterpoint, which enriches narratives by contrasting visual and audio elements. By placing sound against visuals, he highlights the emotional weight of scenes, sometimes using conflicting sounds to raise tension or portray complicated character feelings (Kurosawa A, 2021). Discussions around these techniques show that Kurosawa's stylistic choices strongly align with the film's psychological and thematic themes, demonstrating his mastery of cinematic language that continues to influence filmmakers worldwide (Diolez N, 2014). Akira Kurosawa's filmmaking style shows a blend of innovative practices that have greatly shaped film language. A key part of his method is known as "cutting on motion," which means editing in line with active movements in a scene.

This approach keeps the narrative flowing and boosts emotional engagement by creating an absorbing viewing experience. Scholars have pointed out that this technique reflects how humans perceive rhythm, allowing audiences to dive deeper into the story ((Magalh Fães, 2023), (Z Lissa et al., 2020)).

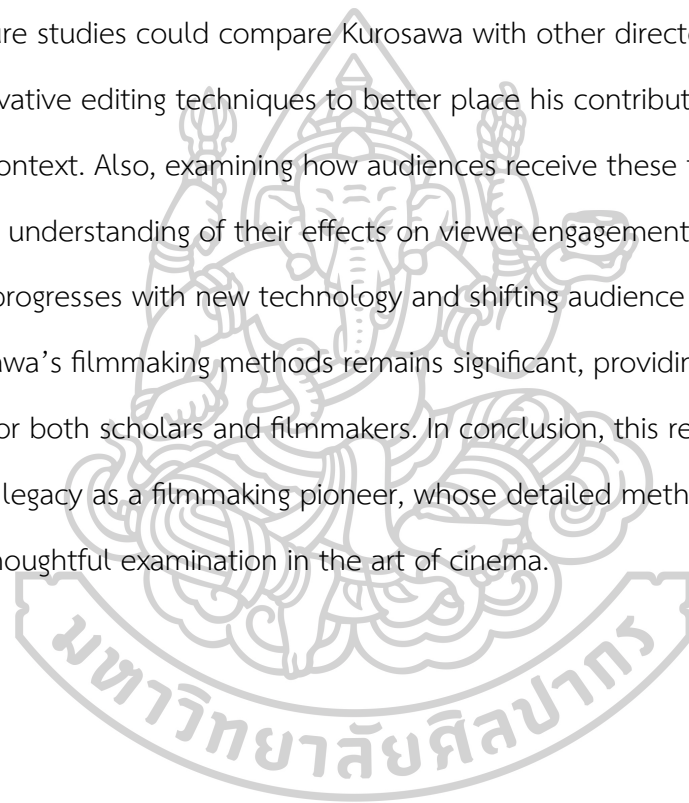
The use of wipes—where one shot replaces another by sliding—further demonstrates Kurosawa's uniqueness. He often used wipes to signify shifts in time

and space, allowing for fluid storytelling that challenges traditional linear formats (Rodrigues IM, 2020), (Hieu LQ, 2022). Such techniques are not just for show; they promote a better understanding of character motivations and theme exploration in Kurosawa's films. The connection between sound and visuals is another key part of Kurosawa's work. This sound-image relationship adds extra meaning that goes beyond just the visuals. By contrasting sound with imagery, he creates a layered auditory experience that enhances emotional depth and reflects character intentions (Kurosawa A, 2021), (Diolez N, 2014). Discussions about these techniques highlight their importance in conveying complex narratives and evoking specific emotional responses, enriching the cinematic experience. In summary, the combination of these unique practices reinforces Kurosawa's significant influence on filmmaking, confirming his place as a master of form and style in cinema.

In looking at the filmmaking methods of Akira Kurosawa, this literature review points out key techniques that shape his style and impact cinematic expression. Important to his work are techniques like cutting on motion, using wipe transitions, and using image-sound counterpoint. Each of these aspects enhances the emotional and narrative depth of his films, making it essential for viewers to engage in a layered storytelling experience. The analysis shows that cutting on motion creates a rhythm that reflects human perception, effectively pulling audiences into the action of the story. Likewise, wipes as transitions improve the flow and thematic connections across different times and places, challenging traditional narrative forms and offering a unique aesthetic that echoes Japanese art. The detailed look at Kurosawa's methods highlights a key theme: the creative blending of visual and sound elements that advances storytelling and impacts modern filmmakers. His methods mark a significant shift from standard filmmaking, promoting an immersive experience that

encourages viewers to interpret and connect with deeper themes. These aspects of Kurosawa's work align with current trends in cinema, where complex editing and sound design continue to shape viewer experiences and expectations. Therefore, the effects of his work go beyond simple techniques, influencing discussions about narrative structure and emotional impact in both academic and practical filmmaking.

Future studies could compare Kurosawa with other directors famous for similar innovative editing techniques to better place his contributions within a larger cinematic context. Also, examining how audiences receive these techniques could deepen the understanding of their effects on viewer engagement and interpretation. As cinema progresses with new technology and shifting audience tastes, studying Akira Kurosawa's filmmaking methods remains significant, providing a valuable source of insights for both scholars and filmmakers. In conclusion, this review confirms Kurosawa's legacy as a filmmaking pioneer, whose detailed methods still inspire and stimulate thoughtful examination in the art of cinema.



2.5.5 Comparison of Akira Kurosawa, Apichatpong Weerasethakul, Béla Tarr, and Andrei Tarkovsky

Category	Aspect	Akira Kurosawa	Apichatpong Weerasethakul	Béla Tarr	Andrei Tarkovsky
Storytelling	Philosophical & Poetic Storytelling	✓	✓	✓	✓
	Slow, Meditative Pacing		✓	✓	✓
	Nonlinear Narrative Structure		✓	✓	✓
	Minimal Dialogue, Emphasis on Visuals		✓	✓	✓
	Use of Dreamlike & Surreal Elements		✓	✓	✓
	Blending of Reality & Fantasy		✓	✓	✓

Category	Aspect	Akira Kurosawa	Apichatpong Weerasethakul	Béla Tarr	Andrei Tarkovsky
Themes	Human Struggle & Existentialism (Deep Emotions)	✓	✓	✓	✓
	Exploration of Time & Memory (Nostalgia)		✓	✓	✓
	Themes of Fate & Moral Dilemmas	✓		✓	✓
	Feelings of loneliness and isolation		✓	✓	✓
Category	Aspect	Akira Kurosawa	Apichatpong Weerasethakul	Béla Tarr	Andrei Tarkovsky
Cinematography & Visuals	Painterly Cinematography (Artistic, carefully composed shots)	✓	✓	✓	✓
	Deep Focus & Strong Visual	✓	✓	✓	✓

	Composition (Strong use of lighting and depth)				
	Use of Black & White or Muted Tones			✓	✓
	Natural Elements as Symbolism (Water, Wind, Fire, etc.)	✓	✓	✓	✓
<b>Category</b>	<b>Aspect</b>	<b>Akira Kurosawa</b>	<b>Apichatpong Weerasethakul</b>	<b>Béla Tarr</b>	<b>Andrei Tarkovsky</b>
<b>Editing &amp; Transition Techniques</b>	Dynamic Editing & Fast Cuts	✓			
	Wipes & Bold Transitions	✓			
	Slow Dissolves & Crossfades (Slow fades between scenes)		✓	✓	✓

	Fluid, Unbroken Tracking Shots (Long, smooth camera movements)		✓	✓	✓
	Minimal Cutting, Prolonged Takes (Very few cuts, long-take)		✓	✓	✓
	Match Cuts	✓			

Table 2 – Comparison of Notable Filmmakers

**Summary:**

1. Kurosawa is known for fast-paced editing, dynamic framing, and action-driven storytelling.
2. Apichatpong, Béla Tarr, and Tarkovsky focus on slow, poetic cinema, using long-take and surreal storytelling.
3. Béla Tarr & Tarkovsky emphasise existentialism, decay, and deep time exploration.
4. Apichatpong shares elements of surrealism and fluid reality with Béla Tarr, but with more folklore influence.

## 2.6 Case Studies in Fine Arts

In the segment "2.6 Case Studies in Fine Art," I undertake an introspective exploration into the practices of artists who are redefining the essence of fine art through eclectic material choices, pioneering techniques, and deeply ingrained philosophical inquiries. This part of my study casts a spotlight on the dynamic interplay between creative intention, material innovation, and the critique of cultural norms, aiming to illuminate the manifold ways in which art serves as a mirror and a mold for societal issues.

First, the inquiry navigates through the artistic landscape of El Anatsui, whose transformative approach to commonplace substances challenges and expands our understanding of sculpture and fabric art. This is followed by an examination of Tom Sachs, whose artful assemblages crafted from the vernacular of consumerism invite a reflective critique on the icons and rituals of modern life.

Each introduction aims to capture the essence of the subject matter in a unique and less predictable manner, emphasising the depth and breadth of the artists' contributions to contemporary cultural dialogues.

### 2.6.1 El Anatsui

In my scholarly journey, I am deeply intrigued by the artistic oeuvre of El Anatsui, whose work presents a profound dialogue with the philosophical themes that shape my own academic inquiries. His practice, as detailed in the critical examination *Engaging with Fibers, Fabrics, and Figures in Nkoli Ka Exhibition* by Chukwuemeka Nwigwe (2019), weaves a complex narrative that intersects global art discourses with rich cultural narratives, thereby pushing the traditional boundaries of textile and sculpture (Nwigwe, 2019).



Figure 23 – El Anatsui, *Stressed Word*, 2011. Aluminum and Copper Wire, 442 x 594.4 cm

(Source: © El Anatsui, Courtesy of the artist and Jack Shainman Gallery-New York.

Available at <https://aas.princeton.edu/news/el-anatsui-triumphant-scale>)

Anatsui's ingenious transformation of mundane materials (**Fig. 23**) into expansive, malleable tapestries of metallic cloth embodies the aesthetic of Wabi-Sabi—finding profound beauty in the impermanent and the imperfect. This notion closely aligns with my thematic focus on the ephemeral nature of existence as manifested through artistic expression. His works, notably pieces like *Peak Project* and *Crumbling Wall*, delve into the themes of consumption, decay, and the perpetual cycle (**Fig. 24**) of renewal—themes that resonate deeply with ecological and philosophical considerations of the human condition and our interplay with the natural world (Gayer, 2008).



Figure 24 – El Anatsui, *Rising Sea (Detail)*, 2019. Installation view at Haus der Kunst. Photo by Maximilian Geuter. Courtesy of the artist and Haus der Kunst Available at <https://aas.princeton.edu/news/el-anatsui-triumphant-scale>

The methodological ingenuity in Anatsui's art, where he incorporates techniques that allow for the continuous reconfiguration of his creations, speaks to a dynamic artistic fluidity that subverts static artistic interpretations and promotes an engaged, evolving interaction with the artwork. This approach greatly inspires my own methodological framework, wherein I aspire to integrate a similar flexibility in interpreting cultural artifacts, thus fostering an understanding that evolves with the multifaceted dimensions of human experiences.

Furthermore, Anatsui's focus on the physical and metaphorical aspects of the materials he employs provides an essential perspective for my analysis. His use of repurposed items such as metal bottle caps and cassava graters not only recycles

these materials but also transforms them into profound commentaries on the socio-economic and environmental repercussions of globalisation within African communities. This transformative reuse of materials creates a compelling parallel to my exploration of how cultural identities and historical narratives are preserved and reshaped through artistic endeavours.

Incorporating Anatsui's artistic philosophies and practices into my study, I find myself particularly drawn to the way his artworks function as both mirrors and windows—reflecting the viewer's reality back at them while also offering vistas into unfamiliar socio-cultural landscapes. His art compels us to reflect on the transient nature of our own states and the opportunities that arise from embracing change and imperfection.

#### 2.6.2 Tom Sachs

Tom Sachs stands out as a luminary whose ingenious manipulation of everyday objects orchestrates a compelling dialogue between the mundane and the sublime. His innovative approach, particularly his application of the knolling technique, meticulously arranges components in a manner that not only reveals but also reconstructs their inherent aesthetic and utilitarian narratives. This methodical alignment, as Sachs explicates, transcends mere order; it is an exploration of truth found in the precise angles and arrangements of items, a practice that unveils latent relationships and unveils a utilitarian poetry embedded within these objects (Fritts, 2019).

My scholarly engagement with Sachs' body of work involves a meticulous examination of how his sculptures and installations—a bricolage crafted from the quotidian—serve as conduits for philosophical inquiry. These pieces do more than occupy physical space; they challenge the observer to decipher the embedded

narratives, transforming everyday materials into profound meditations on consumerism, disposable culture, and the aesthetics of organisation.

Sachs' installations are not simply displays; they are intricate narratives woven from the threads of popular culture, technological obsession, and an almost ritualistic appreciation for the manual processes that underpin artistic creation. Each piece, whether it represents a lunar module or a makeshift weapon, tells a story of innovation and survival using materials that many would consider trash. This juxtaposition of high cultural aspirations with low material bases challenges viewers to reassess their perceptions of value and utility, provoking a deeper contemplation on the nature of innovation and resourcefulness in the modern world.

Moreover, Sachs' commitment to the ethos of 'transparent production'—where the process of creation is as evident as the finished product—reinforces a narrative of authenticity and labour that is often obscured in the consumer goods we encounter daily. His studio, a laboratory of creation, is a testament to the ethos of visibility and process, where every tool and material holds a specific place and purpose, each contributing to a larger narrative of meticulous craftsmanship and design philosophy (Fritts, 2019).

In aligning my analysis with Sachs' reflective practice, I am drawn to explore the broader implications of his work on our understanding of material culture and its impact on societal norms. By integrating these elements into my research, I aim to illuminate how Sachs' artistic philosophy can serve as a microcosm for studying the dynamics of material engagement and cultural production in contemporary society.

This in-depth exploration into Tom Sachs' work not only enriches the discourse on contemporary material culture but also aligns with broader academic pursuits that

seek to unravel the complex interactions between art, technology, and consumerism.

## 2.7 Summary (Expanded Philosophical and Cultural Perspectives on Imperfection)

Exploring the variegated landscape of imperfection through a philosophical and cultural lens unveils its integral role in shaping human experiences and values. This section delves into how different societies and philosophical traditions perceive imperfection, not as a detriment, but as a vital, enriching aspect of reality. From the veneration of the transient and imperfect in the Japanese concept of *wabi-sabi* to the acceptance of inherent flaws within Western existentialism, this analysis will cover the breadth and depth of imperfection's influence.

In cultural practices like *kintsugi*, the Japanese art of repairing broken pottery with gold, we see a literal and metaphorical celebration of imperfection. This method highlights and honours the history of an object, suggesting a broader cultural and philosophical acceptance of breakage and repair as natural parts of life's cycle. Such practices offer a stark contrast to the often unattainable perfection sought in contemporary global cultures.

Further, this section will examine how embracing imperfection is linked to authenticity and humanity in philosophical discussions. By exploring how imperfection is woven into the discourse on aesthetics, ethics, and psychology, we aim to understand how it enhances our grasp of complex human conditions and societal norms.

### 2.7.1 Imperfection in Design Philosophy

In this exploration of design philosophies, I delve into how imperfection is woven into diverse aesthetic and functional frameworks. Focusing on three distinct approaches—Wabi-Sabi, Bauhaus and Functionalism, and Postmodernism—I illustrate how imperfection can serve as a deliberate and significant element within design.

**Wabi-Sabi** represents the Japanese appreciation for the beauty in the transient and flawed. This philosophy guides design by advocating for an acceptance of natural aging and a reverence for the humble, unpolished qualities of objects.

**Bauhaus and Functionalism**, typically known for their precision, also engage with the concept of imperfection. These philosophies suggest that imperfections contribute to the authenticity of a design, providing a human contrast to mechanical exactness and adding a layer of realism.

**Postmodernism** actively embraces imperfection to challenge the streamlined, polished aesthetics typical of modernist designs. By integrating irregular and eclectic styles, Postmodernism uses imperfection as a narrative device to provoke reflection and express individuality in design.

Through this examination, I aim to uncover the pivotal role of imperfection not just as a visual or structural feature but as a deep philosophical underpinning that reflects broader human values and cultural narratives. This insight helps illuminate the broader implications of imperfection in influencing design trends and shaping consumer perceptions.

### 2.7.2 Postmodernism

In exploring postmodernism, particularly through the lens provided by Umberto Eco in his insightful work on repetition and innovation, we uncover a multifaceted perspective on the aesthetic and philosophical transitions from modern to postmodern sensibilities. Eco critiques the persistent modernist pursuit of novelty and its clear demarcation from tradition, suggesting that the postmodern movement embraces a more cyclical and iterative approach to creativity, echoing historical practices that blend the new with the familiar (Eco, 2005).

Postmodernism, according to Eco, interrogates the very notion of "newness" that modernism upholds, proposing instead that innovation can coexist with repetition, that the new can be a reconfiguration of the old. This paradigm shift challenges the primacy of originality as championed by the modernist agenda, suggesting a return to a form of art and aesthetics that values the serial, the repetitive, and the intertextual as means of artistic expression. Eco's analysis of the media landscape, especially television and mass media, illustrates how postmodern art forms might utilise seriality not as a commercial constraint but as a stylistic and narrative choice, echoing the cultural and artistic baroque traditions that celebrated ornate complexity and detailed variation (Eco, 2005).

Through this framework, postmodernism emerges as a critique of the binary oppositions maintained by modern aesthetics—between originality and repetition, high art and popular culture, innovation and tradition. This approach allows for a richer, more inclusive understanding of artistic and cultural production, where the lines between different forms and media are blurred, creating a dynamic field of artistic endeavour that is reflective of contemporary complexities and contradictions.

In this light, postmodernism's embrace of imperfection—as a break from the unyielding pursuit of polish and perfection in modernist design—highlights its significance within broader design philosophies. By acknowledging and incorporating imperfection, postmodernism fosters a design ethos that is more reflective of real-world conditions and human experiences. It champions a more authentic aesthetic, one that resonates deeply with the complexities and variegated textures of human life. This recognition of the imperfect as a vital component of design not only challenges our perceptions of beauty and function but also enriches our interactions with the objects and environments we inhabit.

### 2.7.3 Cultural Attitudes Toward Waste and Imperfection

In this section, I explore the diverse cultural attitudes towards waste and imperfection, highlighting how different societies conceptualise and handle these often overlooked aspects of daily life. By examining the principles of *Mottainai* in Japanese culture, the practice of Resourcefulness in African Art, and Western Perspectives on Waste, this analysis seeks to illuminate the broader implications of waste and imperfection in shaping environmental consciousness and cultural identity. Each cultural approach offers unique insights into how communities utilise and value materials that are typically discarded or deemed imperfect, revealing underlying philosophies that influence sustainability, creativity, and consumer habits globally. Through this exploration, I aim to understand the profound impact of cultural attitudes on waste management and resource utilisation, and how these practices reflect deeper societal values and historical contexts.

### 2.7.3.1 Resourcefulness in African Art

In my exploration of contemporary African art, I am continually struck by the profound ethos of resourcefulness that permeates this diverse artistic landscape. My engagement with the works of artists across the continent reveals a deep-seated ingenuity that goes beyond mere necessity—it is a deliberate act of cultural assertion and reclamation through the adept manipulation of found and recycled materials. These artists harness everyday objects to forge not only compelling artworks but also powerful commentaries on social, ecological, and economic issues.

This practice of reusing materials transcends economic pragmatism and unfolds as a vibrant narrative of resilience and cultural ingenuity. For instance, the transformation of discarded items into art is often a critical reflection on consumption and waste, highlighting a philosophical and ethical commitment to environmental sustainability that predates the global urgency surrounding ecological crises. This approach to artmaking is profoundly connected to the ethos of Ubuntu, which emphasises community and interconnectedness, underscoring a commitment to sustainability and innovation within many African cultures (Njami & Magnin, 2005).

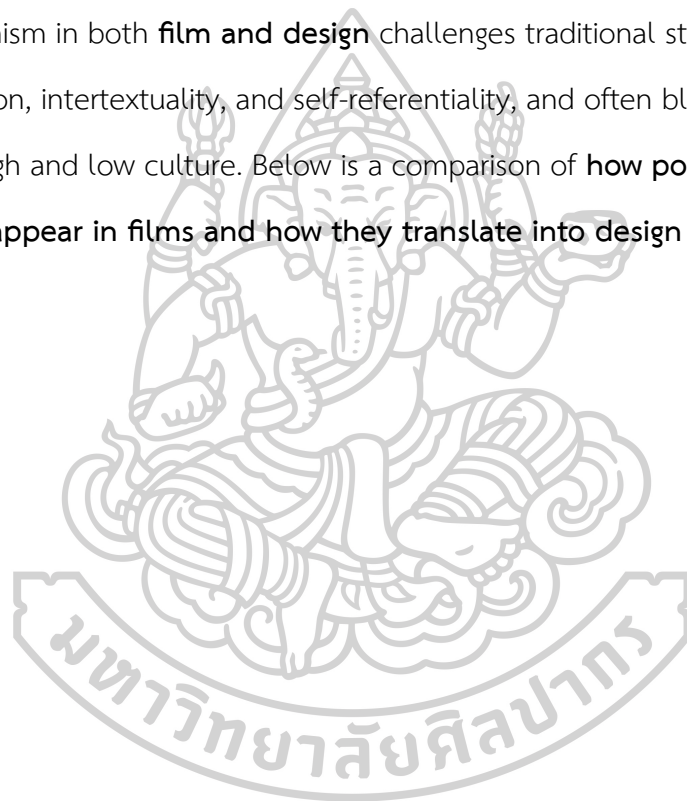
Moreover, my investigation into this creative realm reveals that the transformation of found materials into artworks challenges traditional value systems in art. It compels viewers to reconsider the 'value' of materials and questions prevailing aesthetic hierarchies. African artists navigate and critique global art market dynamics, proposing alternative visions of art's potential and its role in society (Enwezor, 2007).

In my academic pursuits, I've found that African artists do not simply 'make do' with available resources. Instead, they engage in a sophisticated dialogue with materials, weaving together narratives that resonate with both local and global themes. This

synthesis of resourcefulness and resilience transforms everyday objects into poignant mediations on life, art, and the dynamics of cultural exchange, echoing broader discussions on sustainability and creativity (Okwui & Okeke-Agulu, 2009).

Through this lens, I examine how these practices of material reclamation and artistic innovation reflect broader historical and contemporary narratives, revealing a powerful layer of socio-political commentary embedded in the works of these artists.

Postmodernism in both **film and design** challenges traditional structures, embraces fragmentation, intertextuality, and self-referentiality, and often blurs boundaries between high and low culture. Below is a comparison of **how postmodern principles appear in films and how they translate into design applications.**



### CHAPTER 3 METHODOLOGY

This chapter outlines the research design, methods, and processes employed in this study to explore the potential of transforming production errors in garment manufacturing into innovative design elements. The methodology has been carefully structured to ensure a comprehensive understanding of the types and frequencies of

errors in garment production, the perspectives of industry experts, and the creative possibilities of incorporating these errors into fashion designs.

The chapter begins with an overview of the research design, followed by a detailed explanation of the data collection methods, including observational studies conducted in garment factories and expert questionnaires. It also outlines the criteria for selecting research sites and participants, the strategies used to analyse both quantitative and qualitative data, and the integration of design principles in creating new garments from observed errors. Ethical considerations and potential limitations are also addressed to provide transparency and rigor in the research process.

### **Summary of Literature Review and Application to Research**

The reviewed literature underscores the evolving perception of machine errors in textile production, moving from defects to design elements. Several theoretical frameworks and case studies support this transformation, including the aesthetics of error, wabi-sabi philosophy, and sustainable fashion practices.

#### **1. Pre-Consumer Waste and Sustainability**

The discourse on pre-consumer waste emphasises its environmental and economic consequences. Research by Henninger (2021) and Ilić (2024) demonstrates how material inefficiencies escalate production costs and ecological burdens. The study aligns with this perspective by reinterpreting textile waste, particularly machine errors, as valuable resources rather than discards.

#### **2. Error Aesthetics and Philosophical Perspectives**

The philosophical frameworks of Kantian aesthetics (Wenzel, 2009), postmodern theories (Barker, 2011), and wabi-sabi (Jian, 2021; Treviranus, 2010) inform the reconsideration of flaws in design. These theories suggest

that imperfection enhances artistic and functional value, a concept directly applied in this research through the integration of seam puckering, misalignment, and distortion into textile design.

### 3. **Application in Fashion and Textile Design**

Designers such as Maison Margiela and Christopher Raeburn exemplify the use of imperfection in high fashion (Itacarambi, 2020; Townsend & Goulding, 2011). Their approaches validate the research's hypothesis that machine errors can be aesthetically and commercially viable in sustainable fashion.

### 4. **Slow Cinema and Visual Storytelling**

The slow cinema principles explored by Flanagan (2012) and Apichatpong Weerasethakul's narrative techniques (Farmer, 2006; Boon-arch, 2024) provide a methodological reference for documenting and communicating the transformation of machine errors. This research incorporates similar slow, observational approaches in visual storytelling to enhance audience engagement with textile imperfections.

By synthesising these insights, this study reframes production errors as opportunities for sustainable innovation and artistic expression. The application of these theories in experimental design strengthens the argument that machine errors contribute to a new design methodology, aligning sustainability with aesthetic evolution.

### 3.1 Research Design

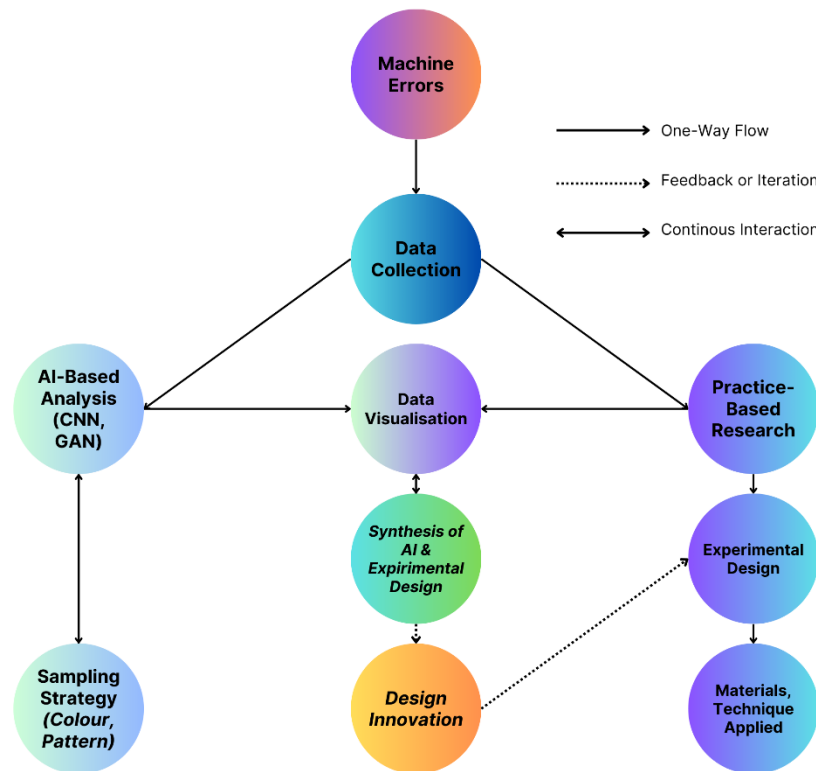


Fig: Hybrid Framework for Error-Inspired Design - Minjade P. Model

Figure 25 – Hybrid Framework for Error-Inspired Design – Minjade Paklapas Model  
(Source: Author)

This study uses a mixed-methods approach, integrating both qualitative and quantitative strategies to investigate the transformation of production errors into innovative design elements within the garment manufacturing industry in Bangkok. This comprehensive approach allows for a robust analysis of error types and expert opinions on their potential for aesthetic and functional reuse in fashion design.

### 3.2 Site Selection and Participant Recruitment

The study focuses on multiple garment production facilities located across various districts in Bangkok. These sites are chosen based on their accessibility, the volume of production, and willingness to participate in the research. Initial contacts will be established through industry connections and cold calls, followed by visits to discuss the research objectives and secure participation agreements.

### 3.3 Data Collection

#### 3.3.1 Observational Study

The researcher will conduct a series of factory visits to directly observe and document production processes. Special attention will be given to identifying and recording specific machine-induced errors, including seam puckering, misalignment, distortion, colour mismatch, ink smudging, thread breaks, and fabric damage.

How is colour mismatch identified?

Colour mismatch will be documented using spectrophotometer readings and visual assessment under standardised lighting conditions to ensure accuracy in detecting inconsistencies. Photographic comparisons with factory colour swatches will also be used.

How will the data be analysed?

Each error type will be classified based on its frequency, severity, and production stage. The documentation will include photographs, technician interviews, and factory process reports to provide both qualitative and quantitative insights into how these errors occur and persist.

### 3.3.2 Expert Questionnaire

Following the observational study, a structured questionnaire will be administered to a carefully selected panel of fashion industry experts with over ten years of experience in Bangkok's textile sector.

How were samples selected?

Participants were chosen using purposive sampling, ensuring that respondents have direct experience in textile production, quality control, or design innovation related to machine errors.

How was the questionnaire developed?

The questionnaire was designed following established research frameworks for validity and reliability, incorporating both closed-ended Likert scale questions (to quantify expert opinions) and open-ended qualitative responses (to capture deeper insights on creative reuse of textile defects).

### 3.4 Sampling Strategy

The research will employ purposive sampling to select a representative range of factories that vary in size, production capacity, and product type. Within each factory, random sampling will be used to select production lines or batches for error observation, ensuring that the data collected provides a balanced representation of the production error landscape across the industry.

### 3.5 Data Analysis

#### 3.5.1 Quantitative Analysis

Quantitative data collected from the observational study and questionnaires will be analysed using descriptive statistics to determine the mean, median, standard deviation, and range of production errors observed. This analysis will help quantify the prevalence and distribution of errors across different factories and production types.

#### 3.5.2 Qualitative Analysis

Responses from the expert questionnaires will be analysed using thematic analysis to identify common themes and insights regarding the potential redesign and consumer perception of products incorporating production errors. This will involve coding the responses and identifying patterns and trends in the opinions and experiences shared by the experts.

### 3.6 Inclusion and Exclusion Criteria

To ensure the study's focus and validity, the following inclusion and exclusion criteria will be applied:

Inclusion Criteria: Garment factories within the specified districts of Bangkok that agree to participate, production errors that can be observed directly during the study period.

Exclusion Criteria: Factories outside the targeted districts, those that do not agree to participate, and errors that are reported second-hand or cannot be verified through direct observation.

### 3.7 Ethical Considerations

The study will adhere to ethical research standards, ensuring that all participating sites and individuals provide informed consent. Confidentiality and anonymity of the participants and their businesses will be maintained throughout the research process, with data being reported in aggregate to prevent identification of individual sites or respondents.

### 3.8 Potential Limitations

The study may face limitations related to the variability of production practices across different factories, the subjective nature of observing and categorising errors, and potential biases in expert responses. Mitigation strategies will include using a standardised data collection protocol, training for the researcher in identifying and classifying errors, and ensuring a diverse range of expert opinions is solicited.

### 3.9 Experimental Design (Practice-Based Research)

#### **Seam Puckering**

Seam puckering occurs when the fabric wrinkles or gathers due to the under tension between the seam and around it or where there is mismatch in some of the fabric properties. This defect continues to be one of the most common defects in textile production and usually means poor workmanship or improper machine settings.

The causes of seam puckering have been extensively analysed by researchers to enlighten them and help in control. Fabric thickness, stiffness, elasticity, and critical sewing parameters such as thread tension and machine feed settings have been identified as key factors to puckering by Hati and Das (2011). Such tiny superficial

inconsistencies in these variables were to directly cause it to pucker, with severity proportionate to the fabric.

Consistent with puckering being at least occasionally caused by interactions of layers of fabric, Brad et al. (2015) showed that puckering frequently happens where one of the layers stretches more than the other, during sewing. Maintaining fabric alignment, and carefully adjusting thread tension, however, is required to prevent these distortions, especially when the goal is for their bags to retain form. For example, Tan et al. (2022) use advanced AI and IoT systems to identify puckering levels with improved precision to determine correlations between puckering patterns and particular material and process variations.

### **Detailed Types of Seam Puckering**

#### **Random Seam Puckering**

Random seam puckering describes unpredictable wrinkling patterns along the seam. They are the result of the puckers developing to accommodate uneven thread tension, inconsistencies in the way the fabric feed, or material elasticity problems. These patterns are not uniform puckering, as the intensity and distribution of puckering varies along the fabric. Random seam puckering challenges researchers to quantify its occurrence and provides opportunities to study the unpredictable behavior of textiles under tension.

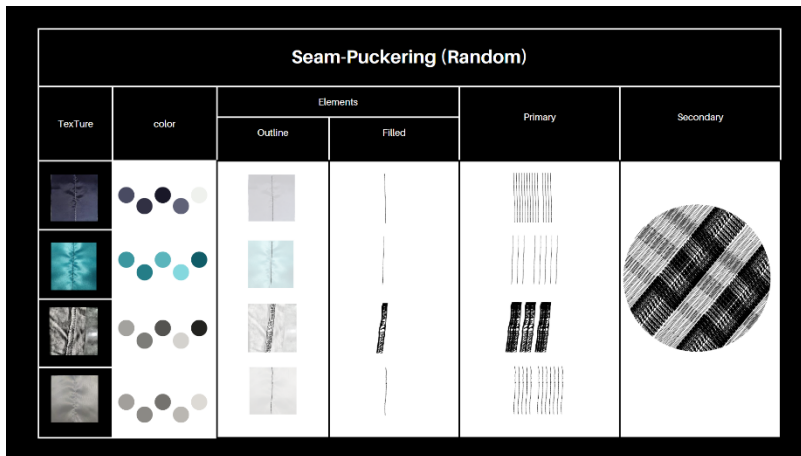


Figure 26 – Seam Puckering (Random)

(Source: Author)

### Abstract Loose Thread Puckering

Loose or poorly affixed threads protrude from the seam to reach the puckered fabric, causing the abstract loose thread puckering. The visual displacement from loose thread and the puckering texture reinforces each other in this form. This type is frequently created by thread slippage or mechanical inconsistencies, resulting in a layered and irregular pattern that both visually and structurally complicates the fabric. The results clearly demonstrate how seam stress develops dynamically and highlight the potential for improving thread behavior and tension calibration.

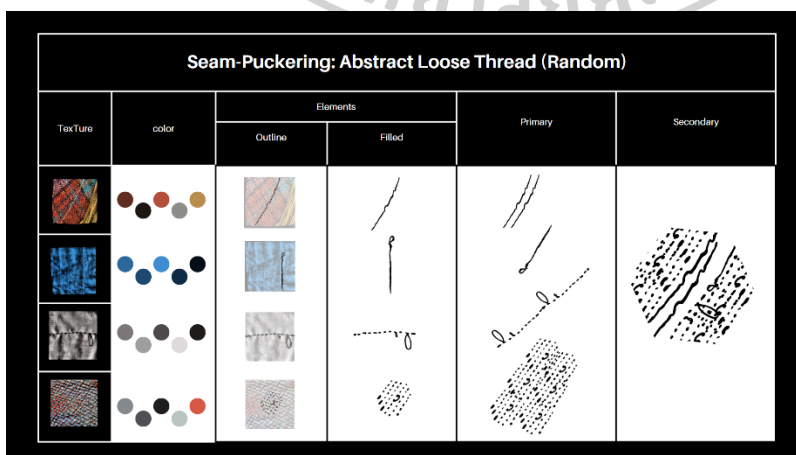


Figure 27 – Seam-Puckering: Abstract Loose Thread (Random)

(Source: Author)

The reinterpretation of seam puckering transforms what was traditionally seen as a flaw into a celebrated aesthetic feature. These irregularities, caused by variations in fabric tension or thread mismatches, are reimagined as organic, flowing patterns resembling ripples or veins. Using tools like Python for simulation and Illustrator for refinement, seam puckering becomes a key visual element that adds depth and texture to the design. Colours such as earthy greens and browns enhance its natural appeal, while rough and uneven textures align with Wabi-Sabi principles, celebrating imperfection and natural flow. The use of seam puckering in designs demonstrates how subtle flaws can create tactile and visually rich narratives that shift the perception of imperfection as undesirable.

### **Misalignment**

Fabric layers are out of alignment if they are not properly stitched or shifted when the sewing is done, causing seams to skew or unpainted patterns. Like a flaw, misalignment brings uncertainty and asymmetry, creating the opportunity for dynamic movement and visual interest introduced to the textile designs. This 'imperfection' is powerful, and often injects an organic, and human touch. It is in line with sustainable design practice in textiles: the concept of misalignment.

Misalignment is frequently incorporated into upcycling as a design feature in a process whereby waste materials are converted into higher-valued or more environmentally benign products.

There have been unique perspectives offered by designers and researchers as to the alignment that is or is not occurring. One example of this is asymmetrical as a design principle, which has been used widely in fashion for its capacity to bring movement, energy, and interest to garments that might otherwise be still or too similar.

Misalignment in asymmetrical details, like off-centre seams or uneven hems, breaks visual monotony while making the processing feel avant-garde.

Another framework for understanding misalignment is the concept of wabi-sabi, a Japanese aesthetic that values imperfection and transience. This philosophy is the idea that designers in textiles should celebrate any flaw of a design, such as a skewed seam, as a sign of its authenticity and uniqueness. Through the embrace of misalignment, designers produce work that speaks to the organic beauty and wonder of hand-crafted work, while extracting attention from what is precisely accurate and moving toward what is barely tolerable.

Historically, design practices that explore misalignment have been undertaken. Bias cuts by Madeleine Vionnet enhanced the fashion fabric that would drape to the body's contours in unexpected ways, breaking from the tone of the era's tastes for the symmetrical. As a result, she set the stage for modern reinterpretation of misalignment as a deliberate design feature.

Recently, textile researchers have explored misalignment in practical and aesthetic settings. While studies on fabric feed mismanagement have shown that inconsistencies during sewing cause uneven seams and fabric slippage, they have not uncovered how the inconsistencies can be prevented. Instead, these are now seen as opportunities to experiment with layering and movement within garment design.

Instead of eliminating misalignment from the apparatus, they are reconsidering its potential as a design feature. Uneven stitching lines or displaced seams create uniform patterns with depth and texture without disrupting the pattern. Their irregularity evokes a sense of deliberate breakage, making designs appear more contemporary and unconventional. Misalignment transforms what could be

perceived as an error into a focal point, emphasising the interplay between fabric and form.

## Detailed Types of Misalignments

### Abstract Seam Slippage

Abstract seam slippage occurs when one fabric layer shifts slightly relative to the other during sewing. This creates unexpected gaps, distorted edges, or a wave-like flow along the seam. Rather than being a defect, this slippage can lend textiles to a playful or experimental quality. Designers can highlight these shifts by contrasting colours or textures, amplifying the organic movement created by the slippage. This approach allows for the creation of asymmetrical designs that feel modern and bold.

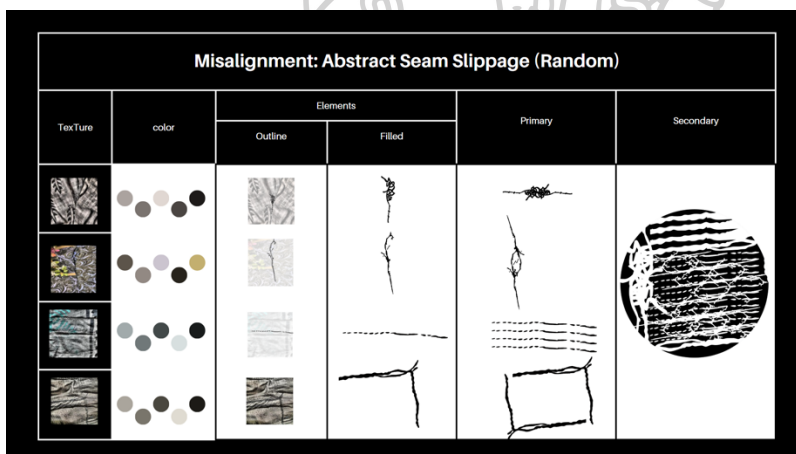


Figure 28 – Misalignment: Abstract Seam Slippage (Random)

(Source: Author)

### Machine Error Misalignment

Machine error misalignment arises from stitching deviations caused by mechanical irregularities, such as improper feed timing or thread tension. These deviations produce uneven or fragmented patterns that disrupt the uniformity of the fabric. However, when embraced creatively, these disruptions can introduce unique visual

rhythm and texture to a design. For instance, broken or staggered stitch lines can create a layered or fragmented aesthetic, resembling glitch art or deconstructed fashion. By showcasing these "errors," designers can celebrate the unexpected beauty of imperfection.

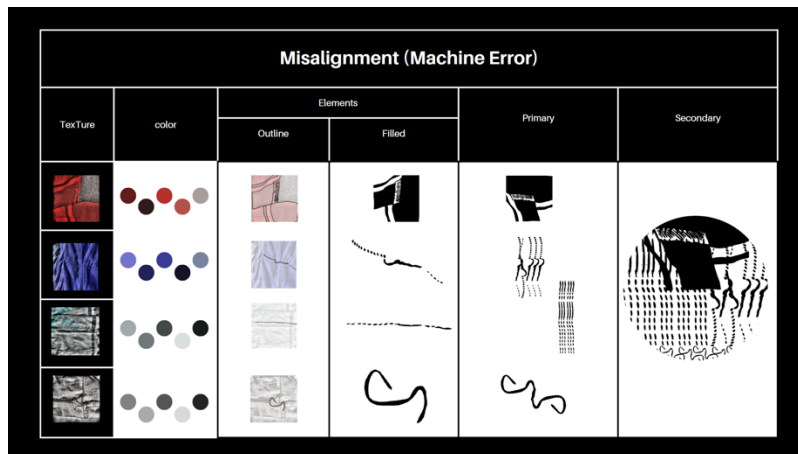


Figure 29 – Misalignment (Machine Error)

(Source: Author)

### Skipped Stitches (Random)

The "Skipped Stitches (Random)" type of misalignment is defined by irregularities in stitching where certain stitches are incomplete, unevenly spaced, or entirely skipped. This error is typically caused by mechanical inconsistencies, improper thread tension, or misaligned fabric layers during sewing. These disruptions create unique, organic patterns that enhance the visual and tactile complexity of the textile.

This misalignment leverages a grayscale colour palette, emphasising subtle contrasts between disrupted and smooth sections of the fabric. Key design elements include disjointed outlines formed by the skipped stitches and filled areas that develop layered textures. These irregularities are further abstracted into circular or wavy patterns, adding rhythm and movement to the design. By reimagining these skipped

stitches, designers embrace imperfection, aligning with Wabi-Sabi aesthetics that celebrate flaws as intrinsic beauty.

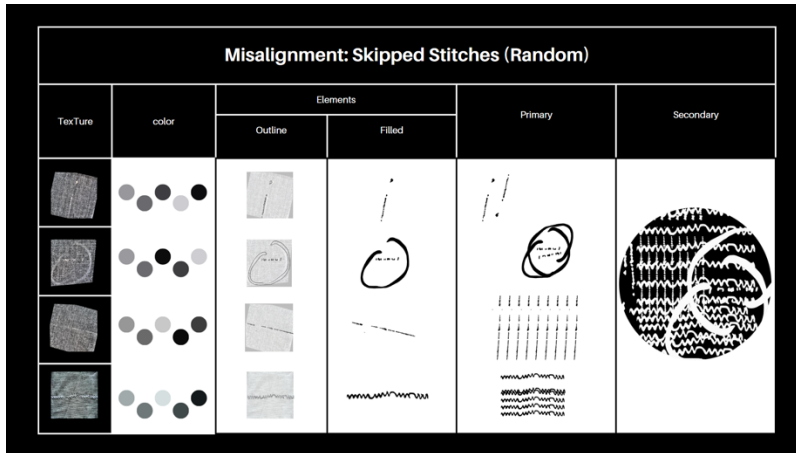


Figure 30 – Misalignment: Skipped Stitches (Random)

(Source: Author)

Misalignment, characterised by uneven seams and fabric layer shifts, is intentionally leveraged to add asymmetry and visual complexity. Techniques involving Python algorithms and Illustrator layering reimagine these irregularities into dynamic and asymmetrical patterns. Bold, contrasting colours like red and blacks emphasise the misalignment, creating a sense of movement and unpredictability. These choices reflect the avant-garde philosophy of embracing imperfection as a unique characteristic rather than a defect. Misalignment's integration into textile design embodies the glitch aesthetic, transforming unpredictability into a compelling narrative that challenges traditional notions of symmetry and precision, while contributing to the emotional authenticity of the final product.

### Distortion

Distortion encompasses various irregularities, including knots, slubs, stains, and waving defects, often resulting from material stress or manufacturing inconsistencies. While traditionally viewed as flaws, these features can introduce unexpected

textures and shapes, inspiring unique and fluid designs. For instance, abstract knots create tactile elements, slubs add linear accents that break smooth surfaces, and stains or waving defects mimic organic patterns like water ripples or natural landscapes. These irregularities offer designers a chance to break away from conventional perfection, crafting textiles with character and individuality.

The distinctive nature of these distortions allows them to serve as bold and intentional design elements. By incorporating such imperfections, designers create textiles with a raw, unpolished aesthetic that appeals to consumers seeking authenticity. Furthermore, utilising distorted materials supports sustainable practices by reducing waste and transforming flaws into high-value design assets.

### **Detailed Types of Distortion**

#### **Abstract Knot (Random)**

Abstract knot distortions occur when fabric irregularities or mechanical inconsistencies form small, concentrated knots. These disruptions forge organic outlines with a wide variation in the size and texture of the slabs. The distorted filled elements of these distortions often assume amorphous blob shapes, not the structural patterns typical of textile. However, the principal design consists of these irregularities as scattered and organic motifs and secondary features compose them in dense, abstract compositions. Grayscale palette works on bringing out the texture and evoke raw and tactile as a whole. This kind of distortion could be used in textile art and fashion and more, to create layers of complexity and to celebrate the fact that imperfection as a deliberate artistic choice.

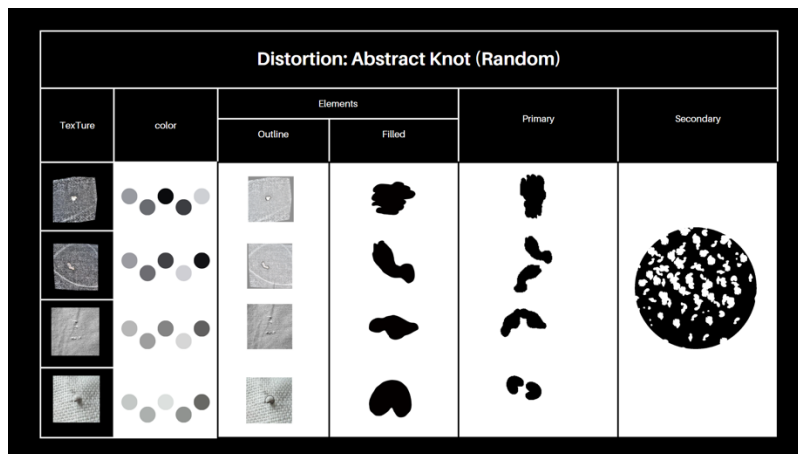


Figure 31 – Distortion: Abstract Knot (Random)

(Source: Author)

### Abstract Slub (Random)

Abstract slub distortions are characterised by uneven thread thickness or irregular weaving patterns, forming lines or crosshatch elements on fabric surfaces. The outlines represent the organic fluidity of the slubs, whilst the filled elements represent the representation of the slubs in the form of sharp or linear or fragmented patterns. In the first place, the main design focuses on the irregular threads as individual motifs, while the second works to interrelate or overlap to provide depth. Textile designs with minimalist, yet textural air come together in a grayscale and neutral palette with these distortions. This kind of distortion is commonly being used in avant-garde fashion and interior textiles, which are harmonising with the ambitious aesthetics of contemporary age.

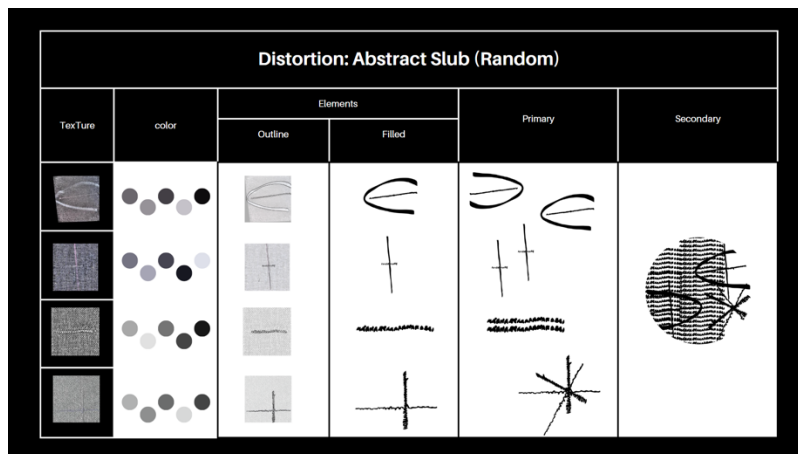


Figure 32 – Distortion: Abstract Slob (Random)

(Source: Author)

### Abstract Hole (Random)

Abstract hole distortions emerge from fabric defects where material is punctured or removed. These are distorted, which are marked out irregularly and with hollow, voidlike shapes that are somewhat abstracted into dynamic primary and secondary designs. These holes tend to complete filled elements into intricate, interconnected forms which create an appearance of fragmentation. The use of muted tones such as greens, grays and blues create a natural and even ethereal colour palette. Abstract hole distortions can be used in textile design to explore themes of decay, impermanence, and reconstruction, offering unique possibilities for experimental art installations or conceptual fashion.

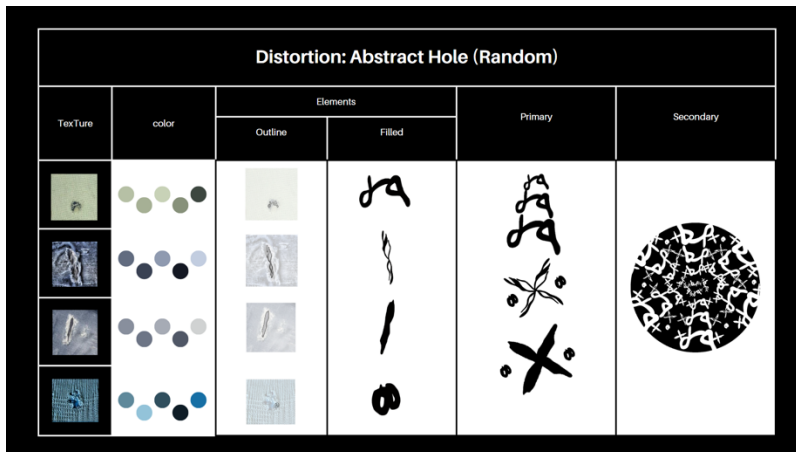


Figure 33 – Distortion: Abstract Hole (Random)

(Source: Author)

### Abstract Snag (Random)

When threads are pulled on Snag distortions occur in which protrusions or loops will form on the fabric surface. They are presented as small, organic shapes, which become amorphous or scattered patterns when filled. Isolated snags are the primary features and, as secondary elements, clusters of these distractions create a denser visual texture. The warm colour palette of grays to purples and pinks gives the design vibrancy. Specifically, abstract snags offer particularly elegant solutions to represent deconstruction and tactility and are fundamental in modern fashion collections incorporating texture and imperfection as aesthetic hallmarks.

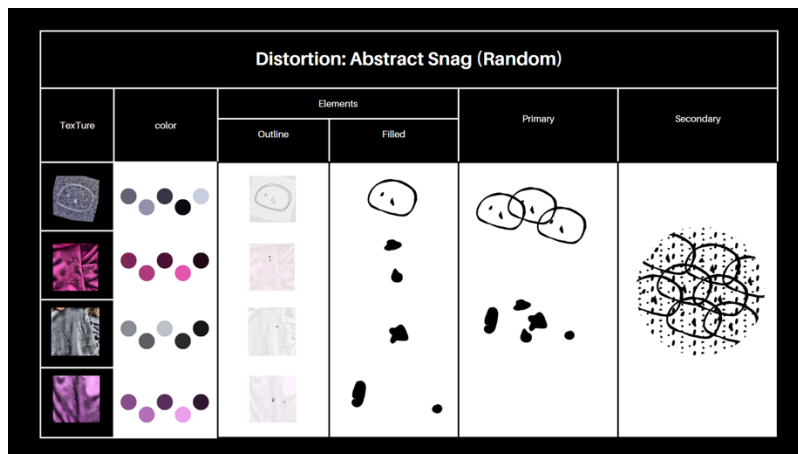


Figure 34 – Distortion: Abstract Snag (Random)

(Source: Author)

### Abstract Stain (Random)

Abstract stain distortions manifest as irregular discolourations or surface marks on textiles. The front outlines transform into splashes of various organic influences or fluid substances, while the back fills towards, creating elaborate compositions. Isolated stains serve as the primary focus, while combined stains form rhythmic patterns on the secondary fabric. A colour palette predominantly featuring gray tones, complemented by touches of gold or earthy hues, adds a touch of richness to the overall visual impact. Stain distortions are ideal for exploring themes of transformation and decay, as these images are raw and unfiltered, aligning perfectly with contemporary design philosophies. These distortions are commonly employed in the fashion and home textiles industries to create expressive and dramatic visual narratives.

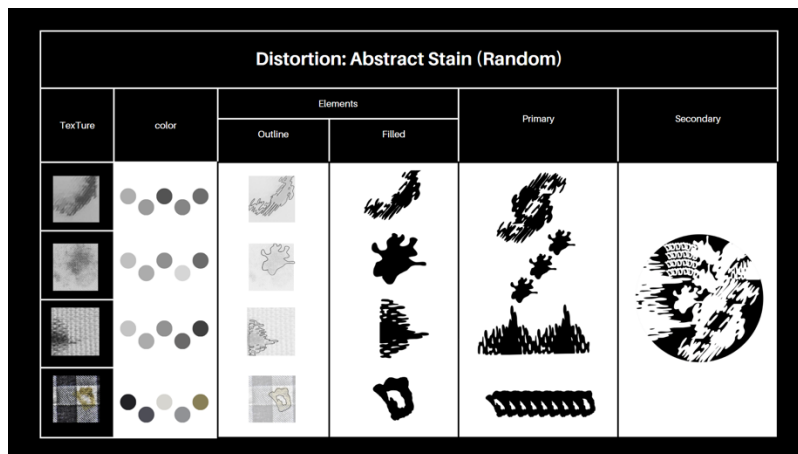


Figure 35 – Distortion: Abstract Stain (Random)

(Source: Author)

### Waving Defect (Random)

Waving defects are caused by fabric undulations or distortions during the weaving process, resulting in flowing, wave-like patterns. These defects are represented as linear outlines and filled elements that mimic the natural movement of waves. The primary designs feature undulating lines, while secondary features stack these waves in concentric or intersecting compositions. These patterns evoke a lusciously calming and organic play of colours using neutral and earth tones in their palette. Waving defects are frequently employed in high-end textiles and fashion to convey a sense of fluidity and dynamic motion, transforming imperfections into intentional and elegant design elements.

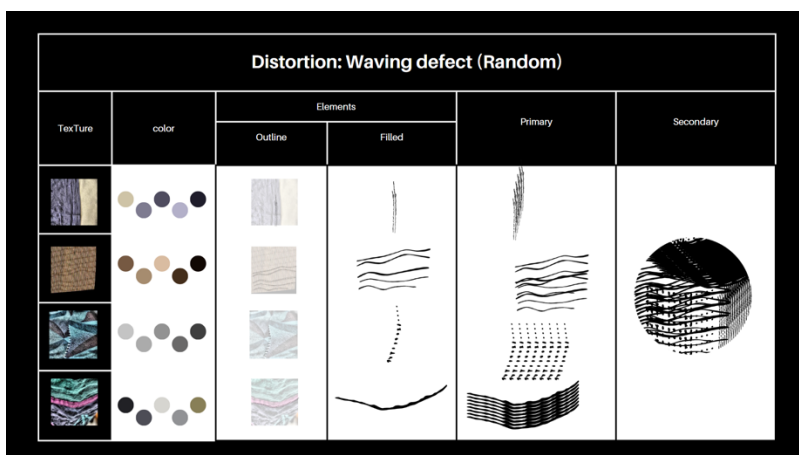


Figure 36 – Distortion: Weaving defect (Random)

(Source: Author)

The following (Fig. 36) presents a comprehensive visual representation of the various types of defects identified across six districts within the textile industry. Each category of defect—Seam Puckering, Misalignment, Distortion, Colour Mismatch, Ink Smudging, Thread Break, and Fabric Damage—is accompanied by visual examples from the respective districts. These images serve to illustrate the specific nature of each defect, providing a clearer understanding of the production challenges faced in each district.

District	Seam Puckering	Misalignment	Distortion	Colour Mismatch	Ink Smudging	Thread Break	Fabric Damage
Sathon							
Suan Laung							
Pathumwan							
Bang Rak							
Lat Krabang							
Rama II							

Table 3 – Samples of Defects in Fabric Factories

(Source: Author)

These visuals are curated to exemplify the prevalent errors that have been systematically categorised throughout my investigation. They offer tangible insights into the textile manufacturing process, highlighting the critical areas where improvements are necessary to enhance overall product quality and reduce the

incidence of defects. Each image has been selected to reflect the typical manifestations of each defect type in real production environments, thereby serving as an invaluable resource for understanding the practical implications of quality control measures in the textile industry.

In this part of my research, I explore the central research question derived from the methodology section, which seeks to assess the prevalence and distribution of manufacturing defects across different districts within the textile industry. This inquiry is crucial for identifying quality inconsistencies and pinpointing specific areas that require intervention to enhance manufacturing processes. The detailed statistical table **(Table 4.)** provided facilitates a nuanced analysis of defect rates, categorising them by seam puckering, misalignment, distortion, colour mismatch, ink smudging, thread breaks, and fabric damage across six districts.

Understanding the prevalence of textile defects in different districts provides a foundation for analysing how errors such as seam puckering, misalignment, and distortion emerge in manufacturing. By examining these defects, I identified key patterns that influenced the experimental design and development of prototypes. This research considers fabric defects across various locations, as shown in **(Table 4.) Prevalence of Defects in Fabric Factories**, to assess how production conditions, machinery quality, and worker expertise impact garment outcomes.

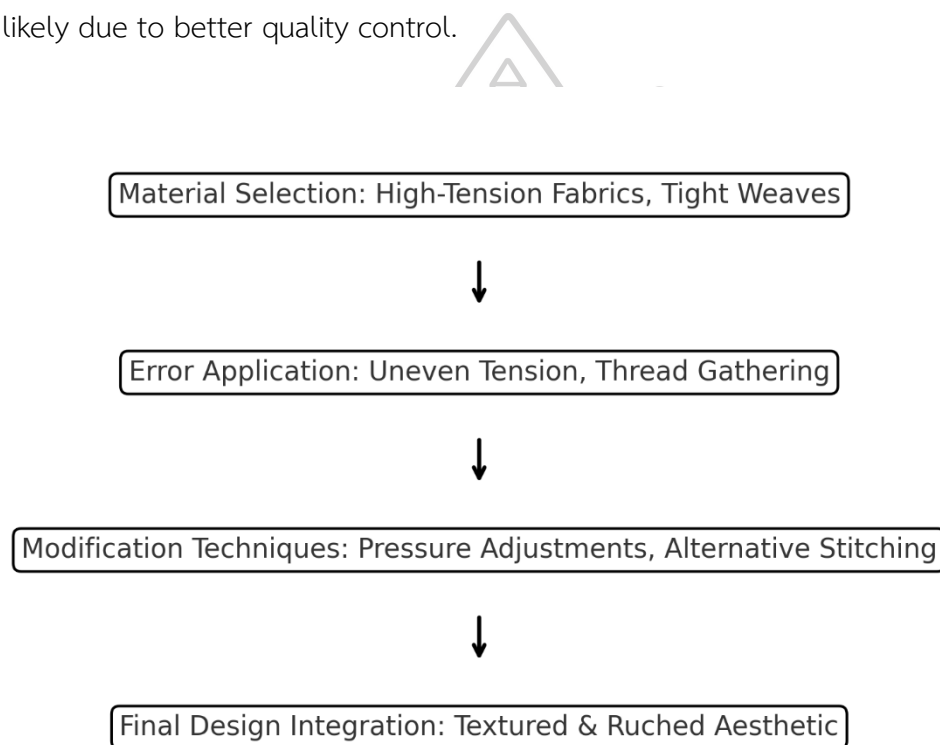
District	Seam Puckering	Misalignment	Distortion (Fabric Damage)	Colour Mismatch	Ink Smudging	Thread Break	Fabric Damage
Sathorn	30 ± 5 (25-35)	40 ± 7 (33-47)	50 ± 9 (41-59)	20 ± 3 (17-23)	15 ± 2 (13-17)	10 ± 1 (9-11)	5 ± 1 (4-6)
Suan Laung	25 ± 4 (21-29)	30 ± 5 (25-35)	45 ± 8 (37-53)	20 ± 3 (17-23)	10 ± 2 (8-12)	5 ± 1 (4-6)	3 ± 1 (2-4)
Pathumwan	35 ± 6 (29-41)	45 ± 8 (37-53)	55 ± 10 (45-65)	15 ± 2 (13-17)	20 ± 3 (17-23)	15 ± 2 (13-17)	10 ± 2 (8-12)
Bang Rak	20 ± 3 (17-23)	25 ± 4 (21-29)	30 ± 5 (25-35)	10 ± 2 (8-12)	5 ± 1 (4-6)	3 ± 1 (2-4)	2 ± 1 (1-3)
Lat Krabang	10 ± 2 (8-12)	15 ± 3 (12-18)	25 ± 4 (21-29)	5 ± 1 (4-6)	3 ± 1 (2-4)	2 ± 1 (1-3)	1 ± 1 (0-2)
Rama II	60 ± 10 (50-70)	70 ± 12 (58-82)	80 ± 15 (65-95)	40 ± 7 (33-47)	35 ± 6 (29-41)	25 ± 4 (21-29)	20 ± 3 (17-23)

Table 4 – Prevalence of Defects in Fabric Factories

(Source: Author)

### 3.9.1 Seam-Puckering

Seam puckering is most prominent in **Rama II ( $60 \pm 10$ )**, indicating possible issues with machine calibration or tension inconsistencies in stitching processes. This suggests that **high-speed sewing machines and improper thread tension** might be contributing factors. In contrast, **Lat Krabang** has the lowest occurrence ( $10 \pm 2$ ), likely due to better quality control.

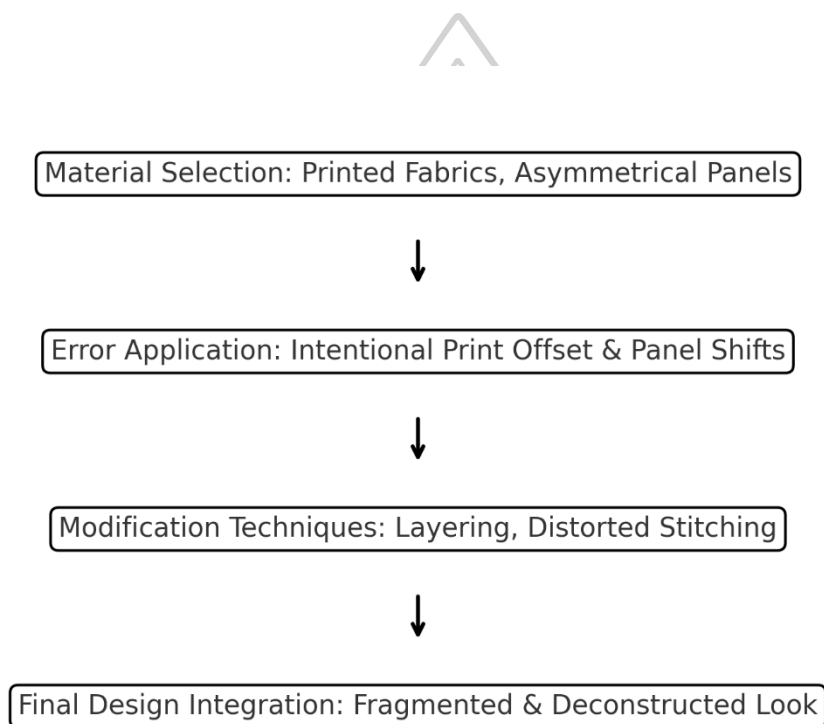


### Seam Puckering Flowchart

*Figure 37– Minjade Paklapas Seam Puckering Flowchart: Process of Error Application in Textile Design*

### 3.9.2 Misalignment

Misalignment appears most frequently in **Rama II ( $70 \pm 12$ )** and **Pathumwan ( $45 \pm 8$ )**. These numbers suggest potential issues with fabric handling and cutting precision, particularly when dealing with layered materials. Misalignment in **Bang Rak and Lat Krabang** is significantly lower, suggesting superior machine accuracy and better manual alignment processes in these districts.

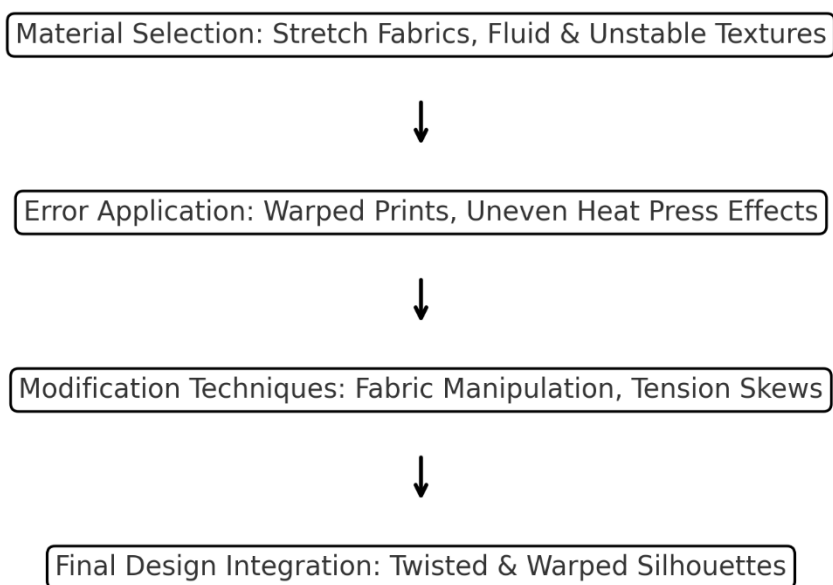


### Misalignment Flowchart

Figure 38 – Minjade Paklapas Misalignment Flowchart: Process of Error Application in Textile Design

### 3.9.3 Distortion

Fabric distortion peaks in **Rama II ( $80 \pm 15$ )**, showing a major discrepancy compared to other districts. This could result from inconsistent fabric tension, excessive heat during pressing, or defects in weaving. **Pathumwan ( $55 \pm 10$ )** also shows a high rate, reinforcing the need for careful quality assessment during production.



### **Distortion Flowchart**

*Figure 39 – Minjade Paklapas Distortion Flowchart: Process of Error Application in Textile Design*

### 3.10 Methodology Summary

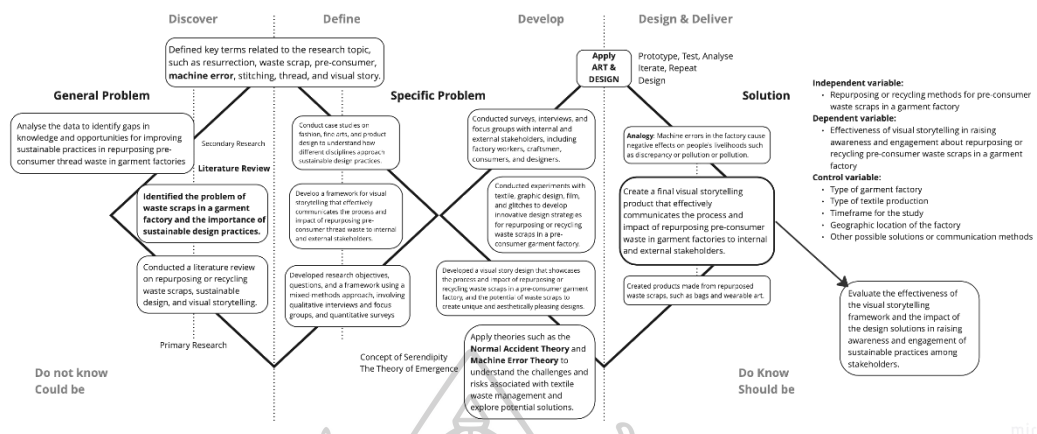


Figure 40 – Methodology Summary (Double Diamond)

(Source: Author)

The research proves that machine-induced errors are not random defects but have identifiable patterns influenced by production factors such as machinery settings, workforce skill, and quality control inconsistencies. By analysing the occurrence of seam puckering, misalignment, and distortion, the study identifies how these flaws can be systematically classified and reinterpreted into textile innovation rather than being discarded.

This research is not just about using machine errors as a fashion aesthetic but about developing a structured design methodology that integrates these flaws into a sustainable, repeatable creative process. The findings contribute to:

**Error-Based Design Strategies:** Creating a framework for designers to systematically analyse and integrate textile errors into their design process rather than treating them as defects.

**Material Intelligence & Textile Innovation:** Understanding how different error types influence textile behavior and how they can be manipulated intentionally for creative applications.

Storytelling & Perception Shift: Examining how visual storytelling alters consumer perception, shifting machine errors from undesirable flaws to desirable design elements, drawing from the Wabi-Sabi framework.

Rather than simply repurposing flawed materials, this research presents a structured approach to transforming defects into intentional design elements, contributing to the broader discourse on sustainability, creative reuse, and textile design methodologies.



## CHAPTER 4 DESIGN DEVELOPMENT

This chapter presents the design outputs developed through the integration of machine errors in textile design, informed by **symbolism in film**. The approach emphasises transforming errors—**Seam Puckering, Misalignment, and Distortion**—from industrial flaws into intentional design elements. Additionally, this section outlines how film and textile design intersect conceptually.

### 4.1 Overview of Design Outputs

Findings:

Rama II District: Rama II stands out with the highest defect rates, notably in distortion, where the defect rate soars to an average of  $80 \pm 15$  (range 65-95). This alarming prevalence suggests critical issues in the production line, potentially linked to outdated machinery or insufficient quality control measures. The high rates of misalignment and seam puckering further exacerbate the concerns, indicating a systemic problem that might involve both the technological aspects of the machinery and the skill level of the workforce.

Pathumwan District: Pathumwan is similarly challenged, with notable defect rates in distortion ( $55 \pm 10$ , range 45-65) and misalignment ( $45 \pm 8$ , range 37-53). These issues may stem from inadequate training or perhaps the mechanical precision of the production equipment. The consistency of defects across these critical areas requires a strategic review of both operational protocols and equipment maintenance routines to mitigate ongoing quality issues.

Lat Krabang District: Conversely, Lat Krabang shows significantly lower defect rates, which might be indicative of more effective quality control systems, the adoption of newer technology, or a management approach that emphasises meticulous oversight. The low rates of defects in this district provide a benchmark of operational

excellence and suggest potential strategies that could be replicated in other districts to improve their production quality.

Sathorn, Suan Laung, and Bang Rak Districts: These districts display a spectrum of defect rates with Sathorn experiencing moderate levels across all categories but showing a particular vulnerability in distortion ( $50 \pm 9$ , range 41-59). Suan Laung and Bang Rak, while having lower rates, still present areas of concern that require attention, particularly in processes that might be prone to ink smudging and thread breaks.

The disparity in defect rates across these districts provides a revealing look into the varied effectiveness of quality control measures and the potential impact of technological disparity. It underscores the necessity for a comprehensive strategy that includes upgrading outdated equipment, enhancing worker training programs, and implementing more rigorous quality control measures.

This analysis not only highlights specific areas within the manufacturing process that are deficient but also suggests a pathway for improvement that includes technological, procedural, and educational enhancements. The expected outcome is to not only reduce the prevalence of defects but also to elevate the overall manufacturing standards across the industry, ensuring consistency and quality in the production output. These insights form the foundation for my recommendations, which will focus on targeted interventions aimed at refining production quality and efficiency, thus fostering a more reliable and robust textile industry.

Theme	Description of Theme	Examples from Interviews
<b>Creative Reuse of Defects</b>	Exploring how defects can be incorporated into designs to create unique or premium products.	"We sometimes see misalignments that introduce unique patterns, turning a potential waste into a designer piece. We've leveraged these 'happy accidents' to launch exclusive collections." - Textile Designer
<b>Sustainability Practices</b>	How defects are managed to promote sustainability and reduce waste in the production cycle.	"There are so many defects that could be creatively reused, yet sadly, many end up as waste. We're pushing to change that by upcycling these into new fashion lines." - Fashion Designer
<b>Economic Viability</b>	Assessing the economic impact and market potential of products made from defective materials.	"Turning defects into desirable products is not just eco-friendly; it's economically smart. But it requires savvy marketing to transform perceptions and showcase their unique value." - Marketing Director, Eco-Fashion Brand
<b>Innovative Techniques</b>	Techniques developed or used to transform defects into aesthetically appealing features.	"We've pioneered a method where slightly off-print fabrics are enhanced with additional layers, creating a multidimensional effect that customers love." - Product Development Head
<b>Consumer Perception</b>	Understanding how consumers perceive, and value products made from defective materials.	"There's a special market segment that truly appreciates the uniqueness brought by imperfections. It's all about celebrating the Wabi-Sabi in fashion." - Textile Artist
<b>Design Philosophy</b>	The philosophical approach to design that embraces or incorporates flaws.	"Incorporating flaws isn't just a design choice; it's a statement about authenticity and the stories we tell through our materials. Each defect has its own narrative." - Lead Designer, Sustainable Fashion Label
<b>Policy and Industry Standards</b>	The role of industry standards and policies in facilitating the reuse of defective materials.	"If only there were more incentives for creative reuse, we could see a significant reduction in waste. Policy changes are crucial to support these initiatives." - Policy Advocate, Textile Industry,

Table 5 – Thematic Analysis Industry Expert Insights

(Source: Author)

The narratives compiled above spotlights a shift in the industry's heartbeat—from discarding to valuing and repurposing defects. The themes explored reveal a range of strategies, from creative techniques that turn flaws into visual highlights to economic reflections that challenge and reshape market practices.

**Creative Reclamation and Sustainability:** This theme illustrates a deep commitment to sustainability, as artisans detail how upcycling and creative reuse are integral to their craft. This approach not only reduces waste but also appeals to consumers who value unique, story-rich products that speak of more than just aesthetics.

**Shifting Consumer Perceptions:** The narratives emphasise the need for nuanced marketing strategies to transform consumer perceptions, highlighting the growing appreciation for products that proudly display their imperfections as badges of honour. This shift is crucial for the acceptance and success of products that embody the ideals of authenticity and sustainability.

**Economic Implications:** Experts discuss the financial aspects of utilising defects, acknowledging the challenges and opportunities it presents. While repurposing defects can be costly, the long-term benefits—such as brand loyalty and market differentiation—can outweigh these initial investments.

**Policy and Advocacy for Change:** Several narratives call for policy adjustments that encourage sustainable practices. These changes would support smaller companies in pioneering new methods without bearing excessive risks, ultimately leading to broader industry transformation.

## 4.2 Conceptual Framework

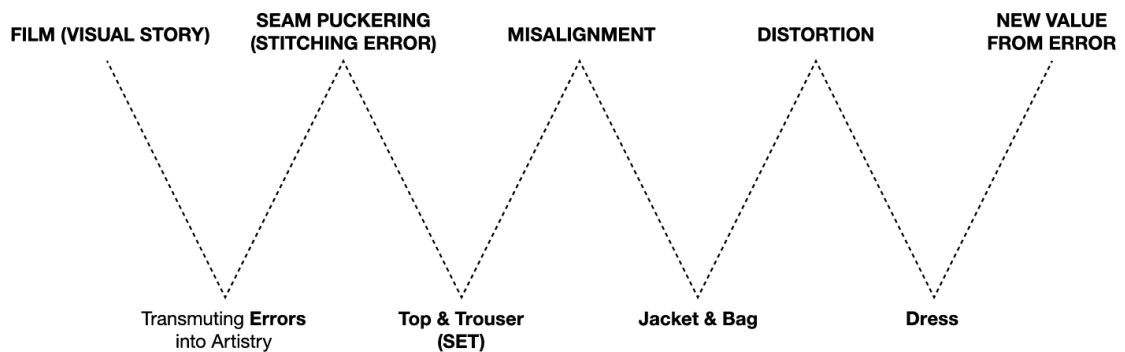


Figure 41 – Conceptual Framework of Error Transformation in Textile Design

The conceptual foundation of this research is based on the reinterpretation of machine errors in garment production as aesthetic and functional tools.

Seam puckering, misalignment, and distortion are typically seen as undesirable outcomes in traditional manufacturing. However, through an experimental design approach, these errors become a means of artistic expression.

This dual framework—textile error manipulation and symbolic storytelling—forms the basis for both material exploration and conceptual direction. The film acts as a conceptual warm-up for tangible design, allowing for deeper exploration of imperfection as a creative force before materialising those ideas into garments.

### 4.3 Visual Story Design

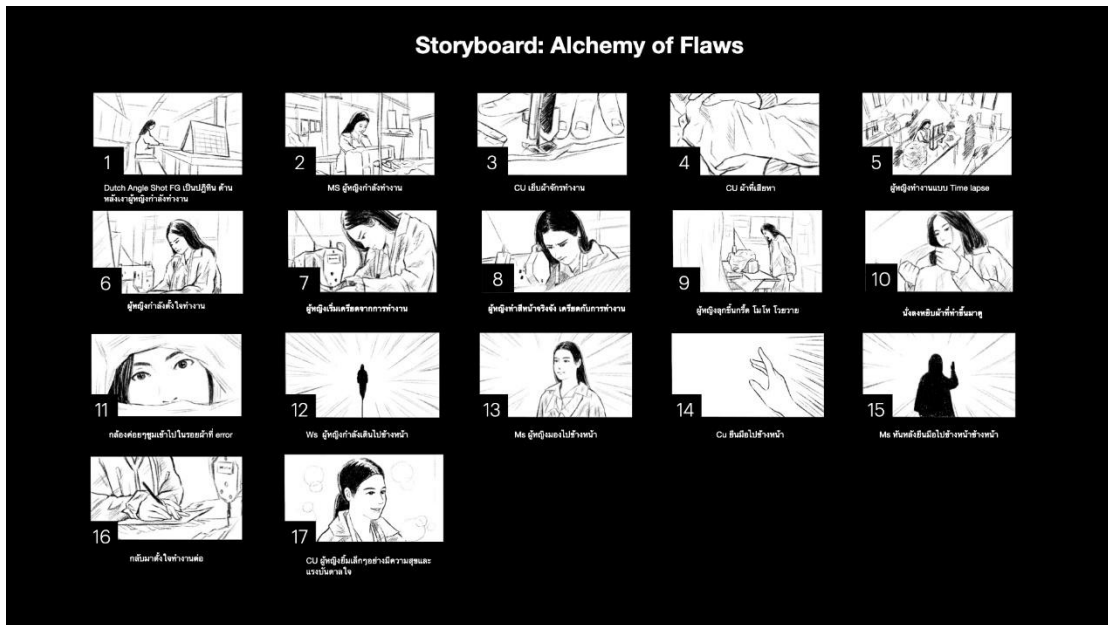
The storyboard presents a structured approach to error-driven garment design. From initial sketches to production challenges, the film captures how unintended flaws—folds, misalignments, and distortions—are reinterpreted into creative form.

#### 4.3.1 Storyboard



Figure 42 – Storyboard Depicting the Transformation of Machine Errors into Design Elements

(Source: Author)



**เสาร์ที่ 11**      **ทีมงาน On location 6.00น. พร้อมถ่าย 7.00น.**      **Breakdown: Transforming Machine Error Date: เสาร์ที่ 11 / 01 / 24 Location: SIAM MASSES AND TRADE COMPANY LIMITED**

08.00 – 9.30 น.	Description	Set/Props	Talent	Remark
	Shot 1 - Dutch Angle Shot FG เป็นปฏิทิน ด้านหลังของผู้ปฏิบัติงานทำงาน Shot 5 - ผู้ปฏิบัติงานแบบ Time lapse	ปฏิทินเขียนว่า "deadline" กระจกที่แสดงงาน ฝ่าที่เขียนเลียมาน แบบเสื้อผ้าต่างๆ	K.โอโซน	

9.30 – 11.00 น.	Description	Set/Props	Talent	Remark
	Shot 2 - MS ผู้ปฏิบัติงานทำงาน Shot 3 - CU มือกำลังทำงาน Shot 16 - กล้องมาส่งไฟทำงานต่อ Shot 17 - CU ผู้ปฏิบัติงานเริ่มถึงความสุขและแรงบันดาลใจ		K.โอโซน	ถ่ายเก็บ ผ้าเสื้อต่างๆ ถ่ายเก็บ CU การทำงานของเครื่องจักร 

<b>เสาร์ที่ 11</b> ทีมงาน On location 6.00น. พร้อมถ่าย 7.00น		<b>Breakdown: Transforming Machine Error Date: เสาร์ที่ 11 / 01 / 24</b> <b>Location: SIAM MASSES AND TRADE COMPANY LIMITED</b>		
<b>11.00 – 13.00 น.</b>				
	Shot 6 - ผู้หญิงกำลังใช้โทรศัพท์ทำงาน Shot 7 - ผู้หญิงเริ่มเครียดหลังจากทำงาน Shot 8 - ผู้หญิงกำลังนั่งจ้องจอ เครียดกับการทำงาน Shot 10 - นั่งหลับหน้าโต๊ะทำงาน Shot 11 - กลับมาทำงานเข้าในโหมดที่ error	หน้าที่เสียบหมอบเป็นรูป	K.โฆโชน	
<b>พักรับประทานอาหารกลางวัน 13.00 – 14.00 น.</b>				
<b>14.00 – 15.00 น.</b>				
	Shot 4 - CU หน้า  Shot 9 - ผู้หญิงดูที่เครื่อง โฆ โฆ โฆ	หน้าที่เอนเสียบหมอบ	K.โฆโชน	
<b>เสาร์ที่ 11</b> ทีมงาน On location 6.00น. พร้อมถ่าย 7.00น		<b>Breakdown: Transforming Machine Error Date: เสาร์ที่ 11 / 01 / 24</b> <b>Location: SIAM MASSES AND TRADE COMPANY LIMITED</b>		
<b>15:00 – 17.00 น.</b>				
	Shot 12 - Ws ผู้หญิงกำลังเดินไปข้างหน้า Shot 13 - Ms ผู้หญิงมองไปข้างหน้า Shot 14 - Cu ฮันมือไปข้างหน้า Shot 15 - Ms หันหลังหันมือไปข้างหน้าข้างหน้า	กรีนสกรีน	K.โฆโชน	ติดเทปเขียวเป็น ไรต์ทางเดิน ถ่ายกรีน
*สิ่งคุณไม่ถูกห่วย คุณก็ถึงสวย ถูกใจผม !!! ขอขอบคุณทีมงานทุกท่านครับ				

Figure 43 – Shot Breakdown for “Transforming Machine Error” Film Production

(Source: Author)

### 4.3.2 Screenscaps

Through visual storytelling, this project highlights the transition from error to reconstruction, where flaws are not corrected but embraced as an aesthetic signature.



Figure 44 – Screenscaps from the Film: *Transition from Error to Reconstruction*  
(Source: Author)

The full version of the film “Alchemy of Flaws — Director’s Cut (2025),” which informs this section, is available online: <https://bit.ly/3ZorKTr>

## 4.3.3 Visual Language

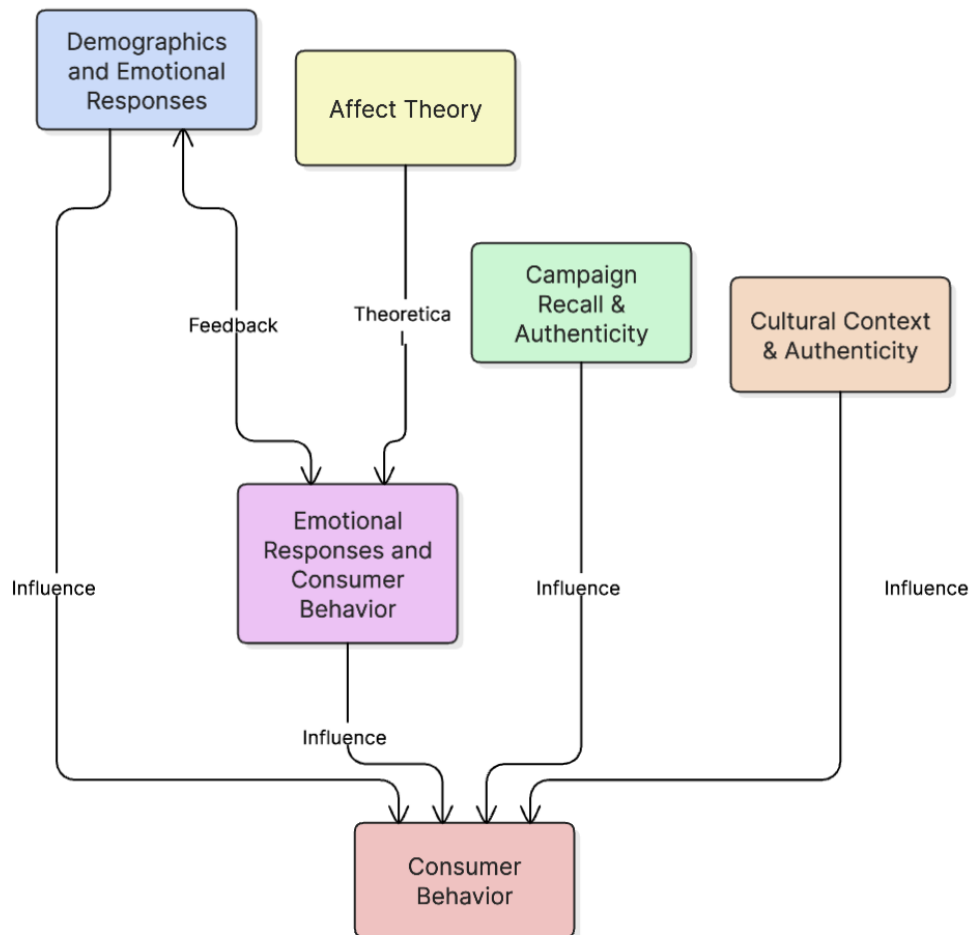


Figure 45 – Visual Language Framework: Emotional and Cultural Influences on Consumer Behavior

(Source: Author)

The visual language of this research draws from both textile manipulation and cinematic techniques. The film embraces symbolic storytelling, allowing time for audiences to engage in the deeper meaning of imperfections. The factory setting becomes a metaphor for structured order, and the visible imperfections in both garments and the environment serve as a counterpoint to industrial precision

The emotional core of the film included:




Theme		Visual Story (Emotional Core)	Design (Error Core)
	Anxiety ความวิตกกังวล	The fear that mistakes will disrupt perfection  ความกลัวว่าความผิดพลาดจะทำให้ทุกอย่างดูไม่สมบูรณ์	<b>Seam Puckering</b> Uncontrolled fabric tension creates irregular textures. <b>รอยย่นจากการเย็บ (Seam Puckering)</b> ความตึงของผ้าที่ไม่สามารถควบคุมได้ทำให้เกิดพื้นผิวที่ไม่เรียบ
	Discovery การค้นพบ	The realisation that flaws hold unique beauty (Seeing the hidden beauty in flaws)  การมองเห็นความสวยงามที่ซ่อนอยู่ในข้อผิดพลาด	<b>Misalignment</b> Stitching doesn't line up as expected, but instead, it creates an intentional asymmetry that adds character. <b>การเย็บที่ไม่ตรงแนว (Misalignment)</b> ตะเข็บที่ไม่เรียงตัวตามที่คาดไว้ แต่กลับสร้างความไม่สมมาตรที่เพิ่มเอกลักษณ์ให้กับงานออกแบบ
	Hope ความหวัง	The possibility of renewal through imperfection (Transforming imperfections into valuable design features)  การเปลี่ยนข้อผิดพลาดให้เป็นจุดเด่นที่มีคุณค่า	<b>Distortion</b> The fabric stretches and warps into new shapes, breaking traditional structure to create something unexpected and innovative. <b>การบิดเบี้ยวของผ้า (Distortion)</b> เนื้อผ้ายืดและบิดตัวไปเป็นรูปทรงใหม่ ทำลายโครงสร้างแบบเดิมเพื่อสร้างความแปลกใหม่และสร้างสรรค์

Table 6 – Emotional and Design Core of the Film: Connecting Visual Storytelling with Textile Errors

These emotions guide the **pacing, framing, and thematic structure** of the film, allowing the audience to experience imperfections as a narrative device. The film serves as a **conceptual bridge**, preparing the groundwork for the tangible designs presented in the subsequent sections.

#### 4.3.4 General Flowchart: Film & Textile Design

The following flowchart illustrates the connection between symbolic storytelling in film and textile design, demonstrating how both disciplines inform each other:

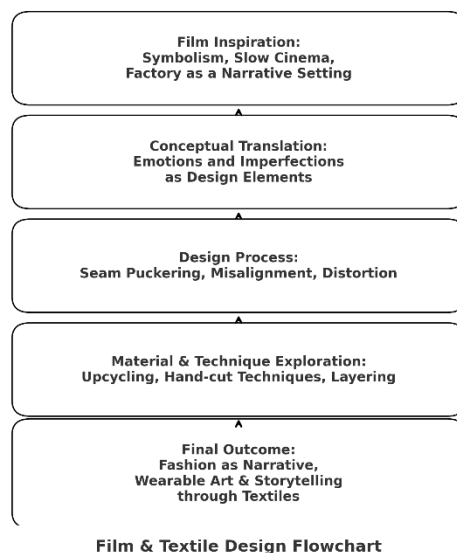


Figure 46 – Minjade Paklapas Film & Textile Design Flowchart: Connecting Symbolic Storytelling and Design Elements

(Source: Author)

#### 4.4 Product Implementation and Design

During this stage, I collaborated with factory partner, **MOREFIEND**, a progressive upcycling brand specialising in sustainable textile innovation. Their approach to repurposing low-value waste materials into functional, high-concept designs aligned seamlessly with my research. Together, we explored pre-consumer garment waste and textile imperfections—not only as raw materials but also as creative inspiration.

To initiate the design process, we developed a series of sketches that reinterpreted machine errors—seam puckering, misalignment, and distortion—into intentional design elements. For example, seam puckering became a controlled textural feature, and misalignment influenced asymmetrical cuts and layered compositions.

With MOREFIEND's expertise, I sourced upcycled textiles from my garment factory, including production offcuts and fabric remnants. These materials were integrated into the prototypes using patchwork, layering, and pleating techniques, enhancing the unique characteristics of each error while reinforcing sustainable practices.

Each prototype went through multiple refinement stages, ensuring both functionality and wearability while staying true to the project's philosophy of imperfection as a design asset. The results bridge visual storytelling and practical design, proving that flaws—when embraced—can create something both conceptually rich and commercially viable.

#### 4.4.1 Initial Sketch

The initial sketches focus on exploring the conceptual framework of machine errors and how they can be visually integrated into upcycled sustainable textile designs. Each sketch highlights specific error-inspired aesthetics, providing a creative direction for further development.



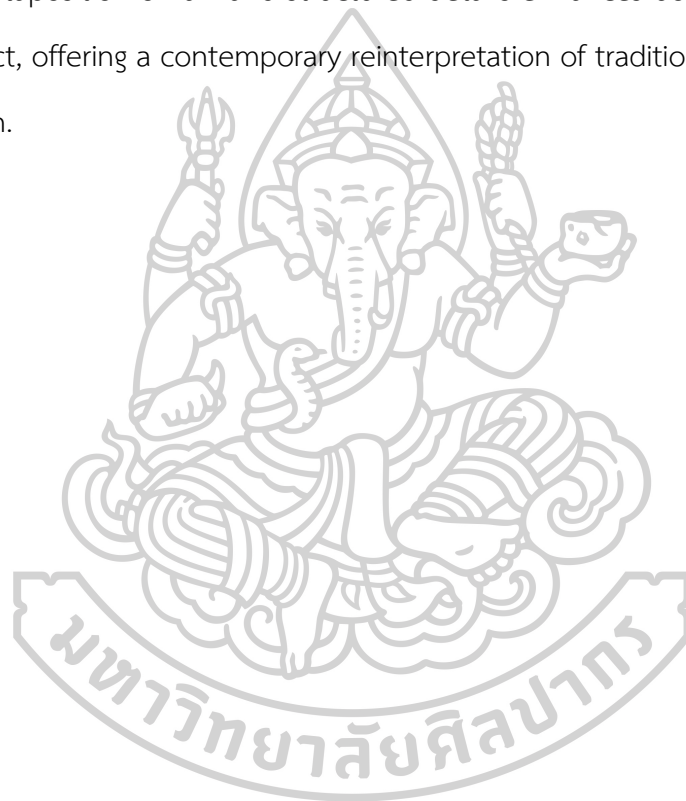
Figure 47 – Design Illustrations: Translating Machine Errors into Fashion Prototypes  
(Source: Author)

### Look 1: Seam Puckering and Label Misalignment

The set includes a top and trousers where seam puckering is highlighted as a decorative detail. Adding texture and depth to the structured silhouette. The misaligned labels, stitched in a freestyle manner, create a deliberate sense of disorder, enhancing the garment's raw, deconstructed aesthetic. This irregular placement challenges conventional symmetry and introduces an element of intentional imperfection, reinforcing a Wabi-Sabi-inspired design philosophy that values the beauty of flaws. The tonal balance of the materials further refines this controlled chaos, ensuring the final look remains cohesive rather than arbitrary.

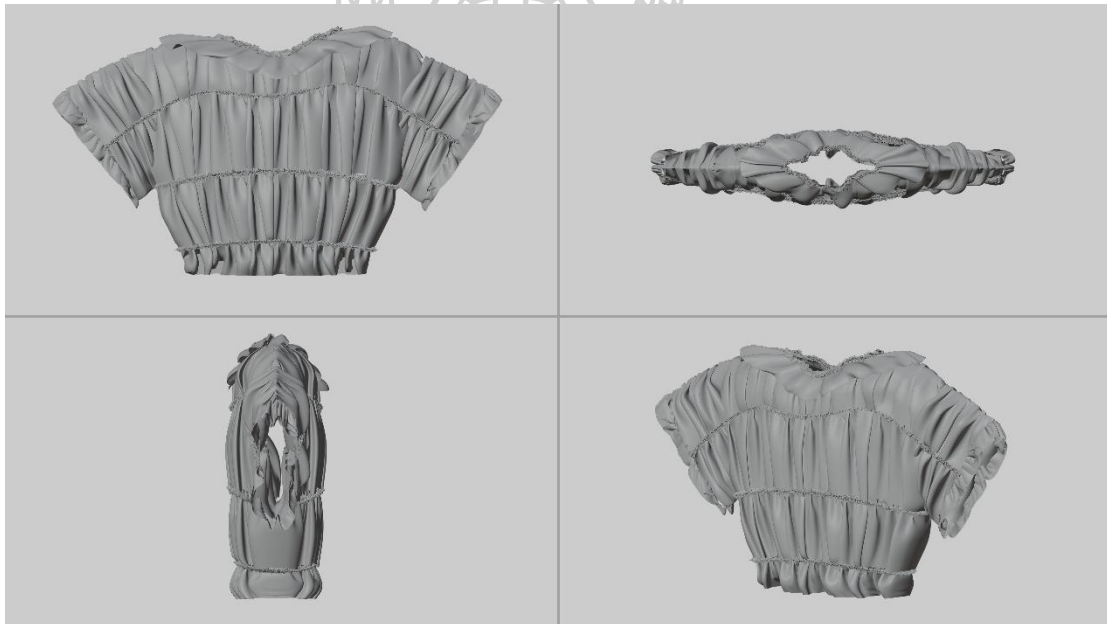
## Look 2: Distorted Dress with Matching Bag

This sketch explores fabric distortion through raw cutouts in the dress, strategically framed by reinforced stitching to maintain durability. The distortion creates an organic, sculptural form, adding a dynamic sense of movement. The matching bag, made from upcycled misaligned labels, transforms these errors into a bold, geometric patchwork, where irregularity becomes an intentional design element. This freestyle juxtaposition of raw and structured details enhances both sustainability and visual impact, offering a contemporary reinterpretation of traditional garment construction.



#### 4.4.2 3D Prototypes

The 3D prototypes serve as a bridge between conceptual exploration and tangible design, testing the material properties and structural integrity of the sketches. By translating machine-induced errors into physical prototypes, the research showcases how these imperfections contribute to textural complexity, layered storytelling, and aesthetic depth. The emphasis on distortion, puckering, and misalignment reinforces a raw, avant-garde sensibility, positioning these elements as innovative design strategies rather than production flaws.

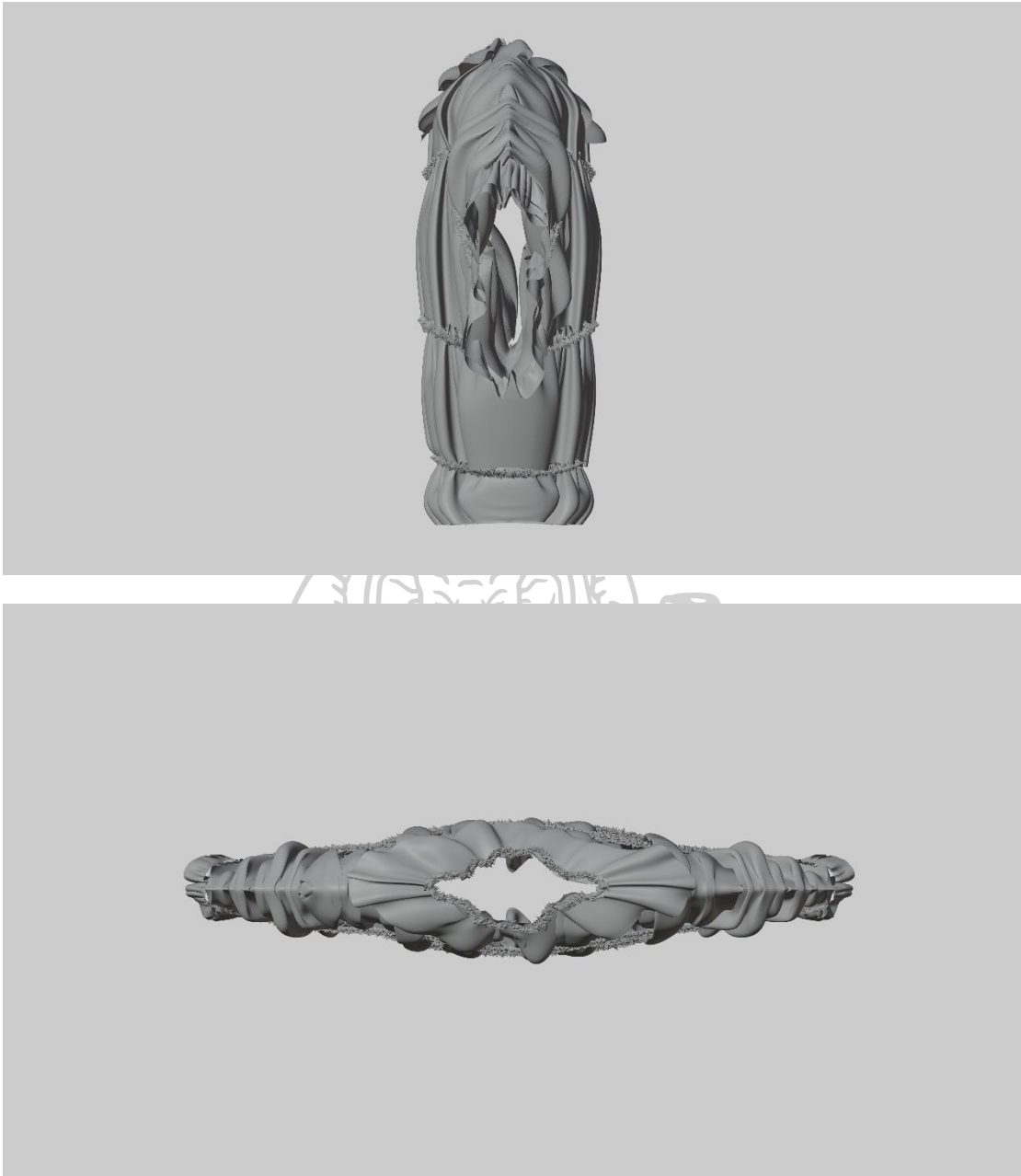


*Figure 48 – 3D Prototype: Seam Puckering as a Design Element*

(Source: Author)



*Figure 49 – 3D Prototype: Front and Back View of Seam Puckering Integration*  
(Source: Author)



*Figure 50 – 3D Prototype: Distortion from Fabric Tension in Seam Puckering*  
(Source: Author)

This 3D form embodies the unpredictability of machine-induced errors, using distortion as a structural and aesthetic element rather than a flaw. The surface irregularities, gathered textures, and twisted forms are inspired by seam puckering and material misalignment, echoing the way fabric reacts under mechanical tension.

The design intentionally embraces asymmetry and deformation, creating a sculptural piece that reflects organic decay and digital error aesthetics. The hollow centre and layered folds introduce a sense of movement and compression, reinforcing the idea of controlled chaos within structured design.

By translating textile errors into a digital and material hybrid, this piece challenges traditional notions of precision in fashion, positioning imperfection as an intentional artistic choice rather than a production defect. The exaggerated distortions blur the boundary between fashion, sculpture, and digital craftsmanship, reinforcing the research's exploration of error as an innovative design tool.

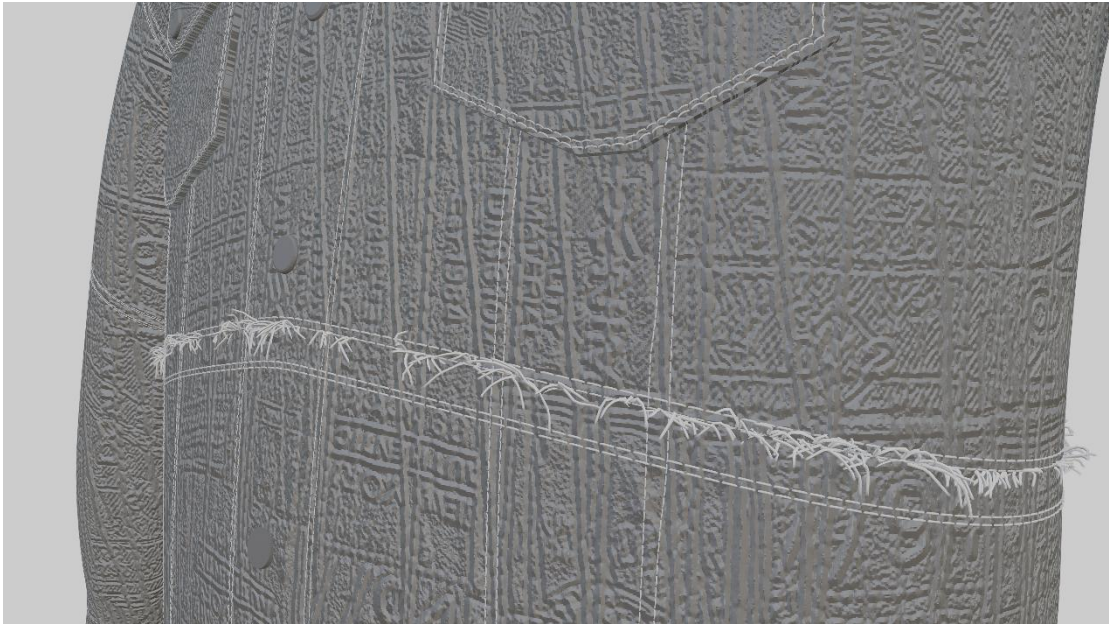




*Figure 51 – 3D Prototype: Misalignment in Stitching and Textural Distortion*  
(Source: Author)



*Figure 52 – 3D Prototype: Misalignment and Textural Distortion in Garment Design*  
(Source: Author)

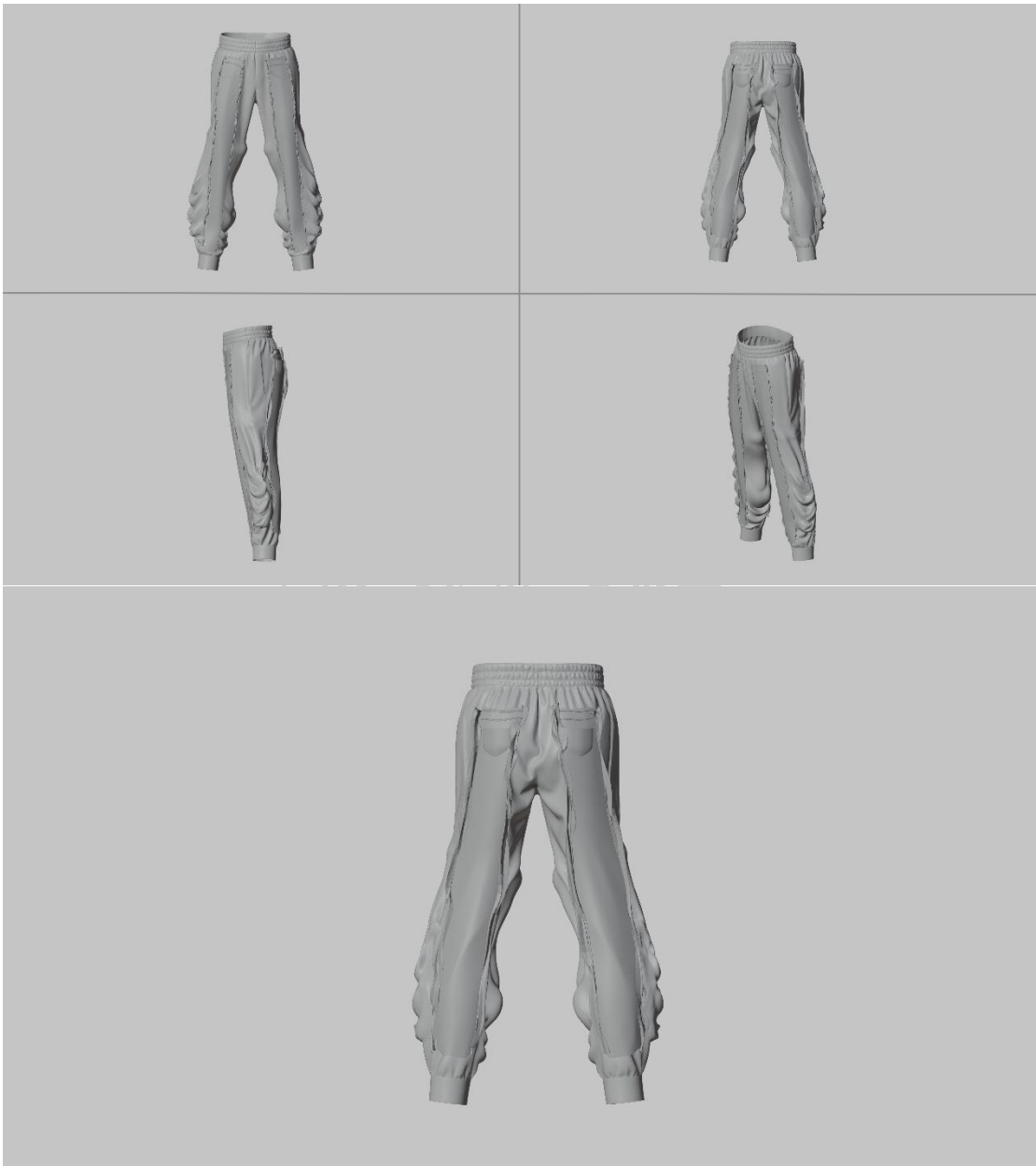


*Figure 53 – Detail View: Frayed Seam and Misalignment as Aesthetic Elements*  
(Source: Author)

This 3D-rendered garment explores machine-induced errors as intentional design elements, emphasising the raw and organic characteristics that emerge from seam misalignment, surface tension, and structural distortions. Instead of perceiving these errors as flaws, they are reimagined as textural features that enhance depth, contrast, and visual rhythm within the piece.

The irregular seam line introduces an element of disruption, shifting away from traditional perfection in garment construction. This unevenness contributes to the Wabi-Sabi aesthetic, which values imperfection as a source of uniqueness. The textural variations caused by puckering and misalignment add a tactile quality, reinforcing the handcrafted appeal of the piece.

By translating machine errors into a deliberate visual language, the design challenges conventional standards of textile precision. The combination of surface irregularity and structural distortion creates a sense of movement and tension, making the imperfections part of the overall design identity rather than unintended mistakes.



*Figure 54 – Multi-Angle View of Pucker Trousers*

(Source: Author)



*Figure 55 – Front and Side Views of Pucker Trousers*

(Source: Author)



*Figure 56 – Three-Quarter View of Puckered Trousers*

(Source: Author)

This design intentionally incorporates seam puckering and structured misalignment to create a layered, sculptural effect along the legs. The exaggerated puckering introduces a sense of controlled tension, adding volume and movement to the silhouette. The irregular surface texture disrupts the usual smoothness of textile finishes, creating a dynamic interplay of light and shadow that enhances the depth of the garment.

The asymmetrical distortions serve both aesthetic and functional roles, reinforcing the raw, deconstructed aesthetic seen in experimental fashion while also contributing to the garment's ergonomic flexibility. The deliberate use of machine-induced errors challenges traditional tailoring norms, positioning imperfection as a deliberate design strategy rather than a production flaw.

By amplifying these distortions, the design merges industrial defects with high-fashion aesthetics, making the errors an integral part of the garment's identity. This aligns with the research's exploration of machine errors as a new language in textile innovation.

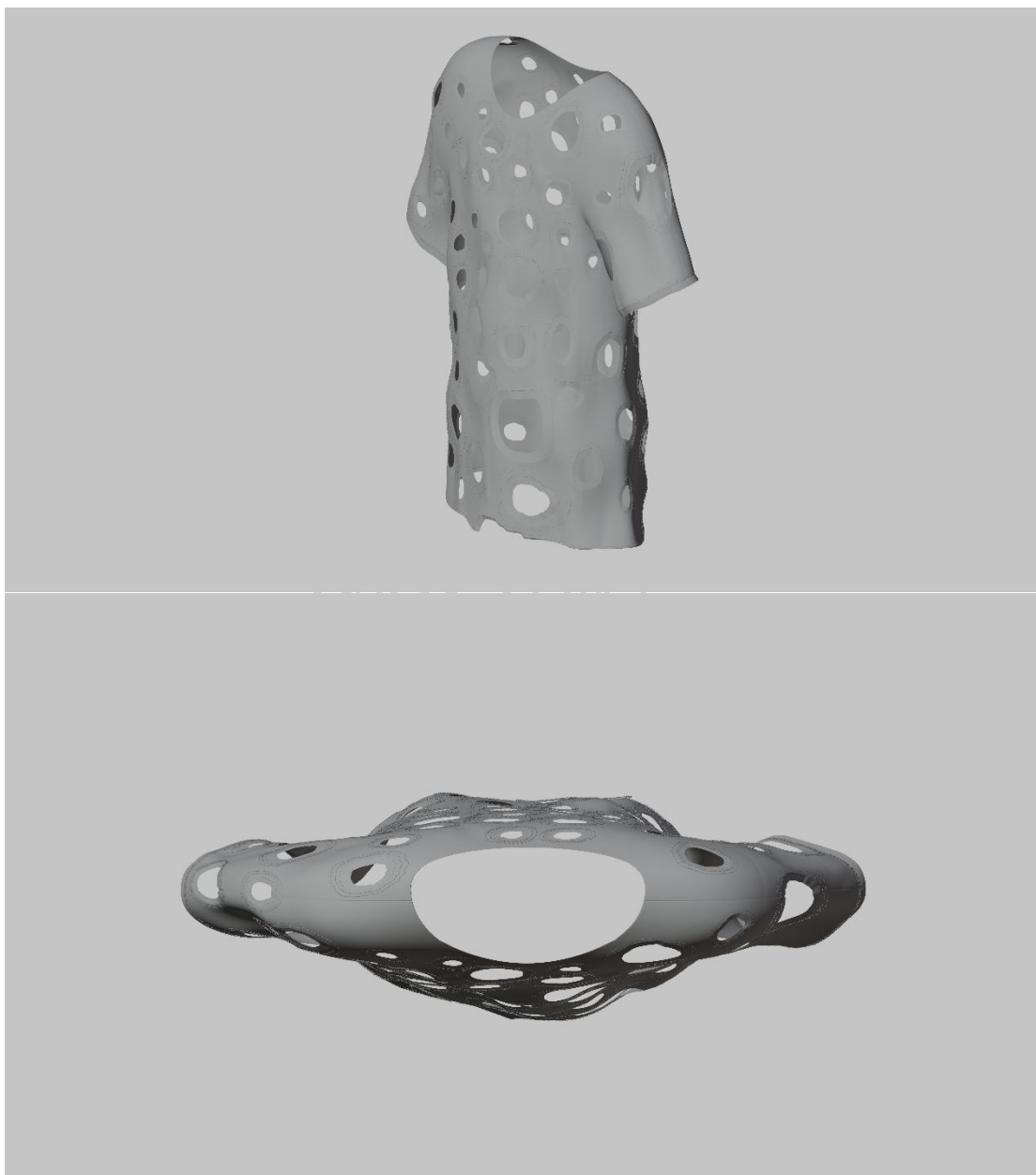


*Figure 57 – Close-Up of Perforated Textile with Stitch Distortion*  
(Source: Author)





*Figure 58 – Perforated Textile Garment with Stitch Distortion*  
(Source: Author)



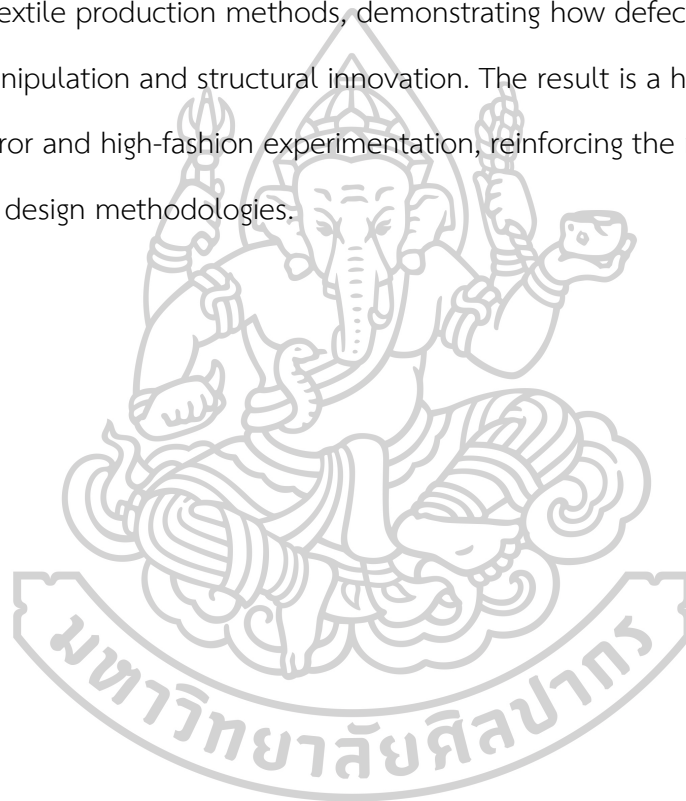
*Figure 59 – Experimental Perforated Textile Structure*

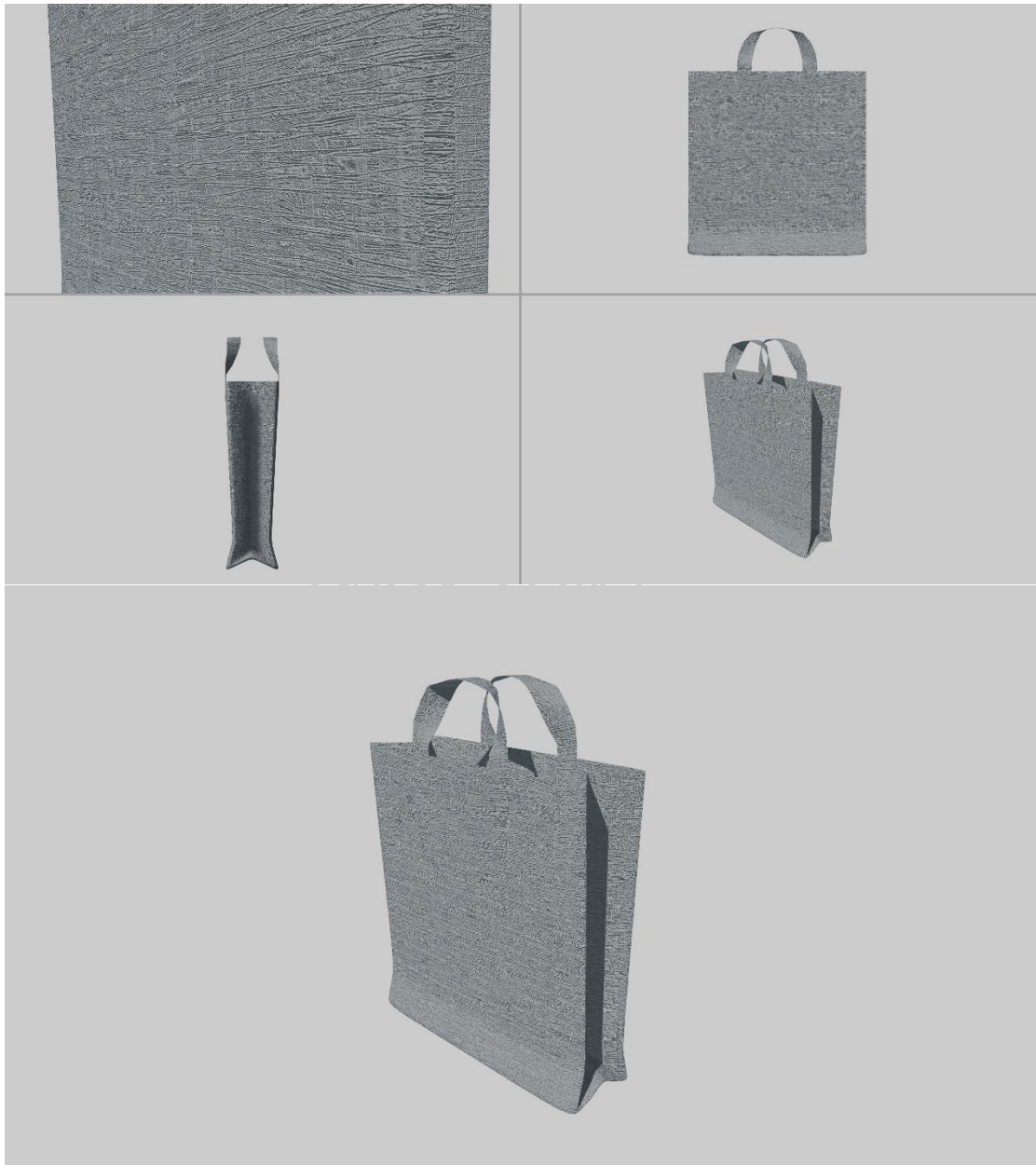
(Source: Author)

This design utilises fabric distortion and irregular perforations as a primary visual and structural element. The scattered circular cutouts mimic the unpredictability of machine-induced defects, transforming them into a deliberate pattern that balances negative space with material integrity.

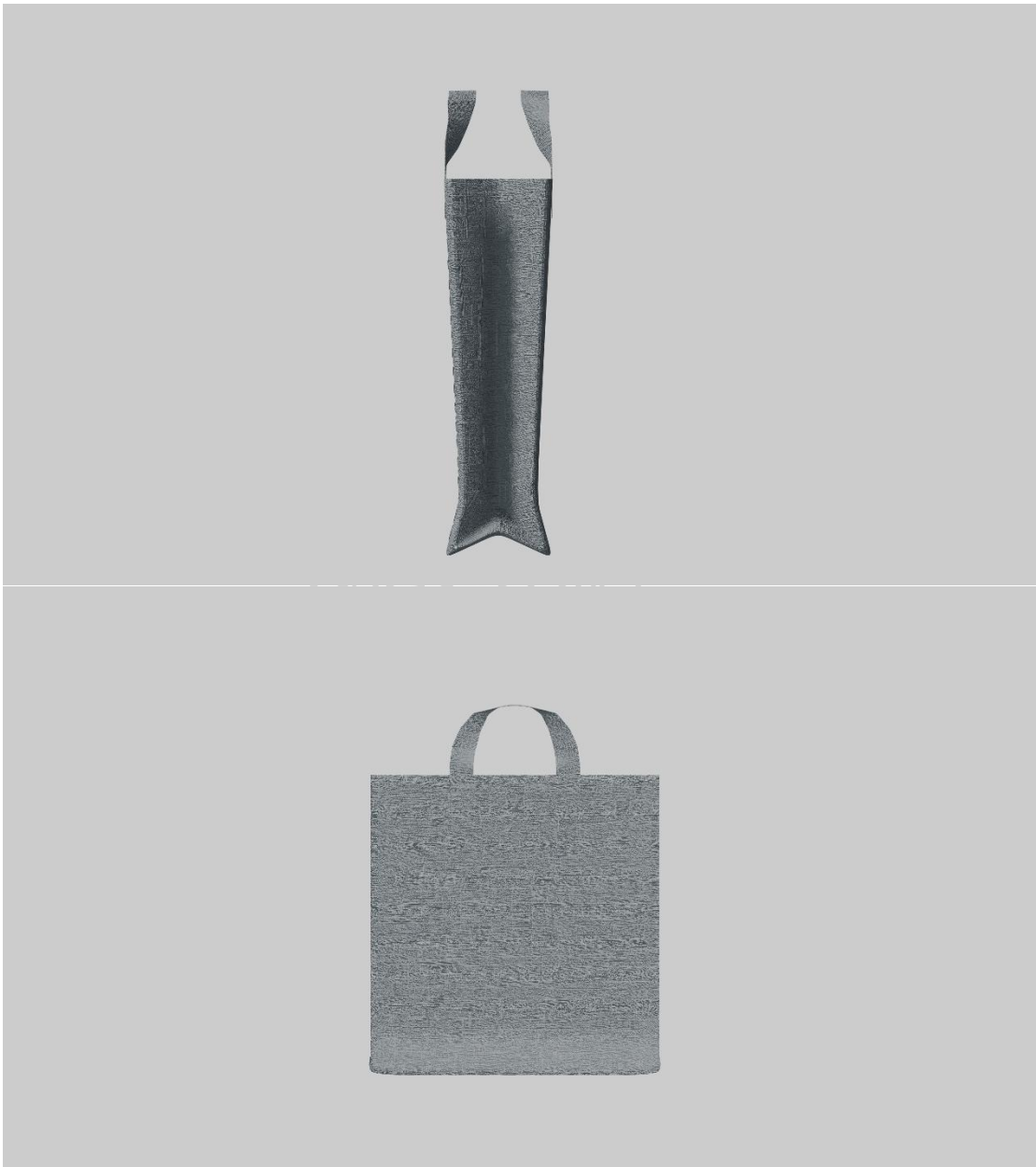
The cutouts, which vary in size and shape, create an effect reminiscent of textile degradation, organic erosion, or digital glitches, reinforcing the concept of imperfection as a design language. The uneven edges and layered distortions enhance the tactile depth, making the garment more visually dynamic as light and shadow interact with the open spaces.

By exaggerating machine errors into an aesthetic feature, the design challenges traditional textile production methods, demonstrating how defects can influence material manipulation and structural innovation. The result is a hybrid between industrial error and high-fashion experimentation, reinforcing the research's focus on error-driven design methodologies.



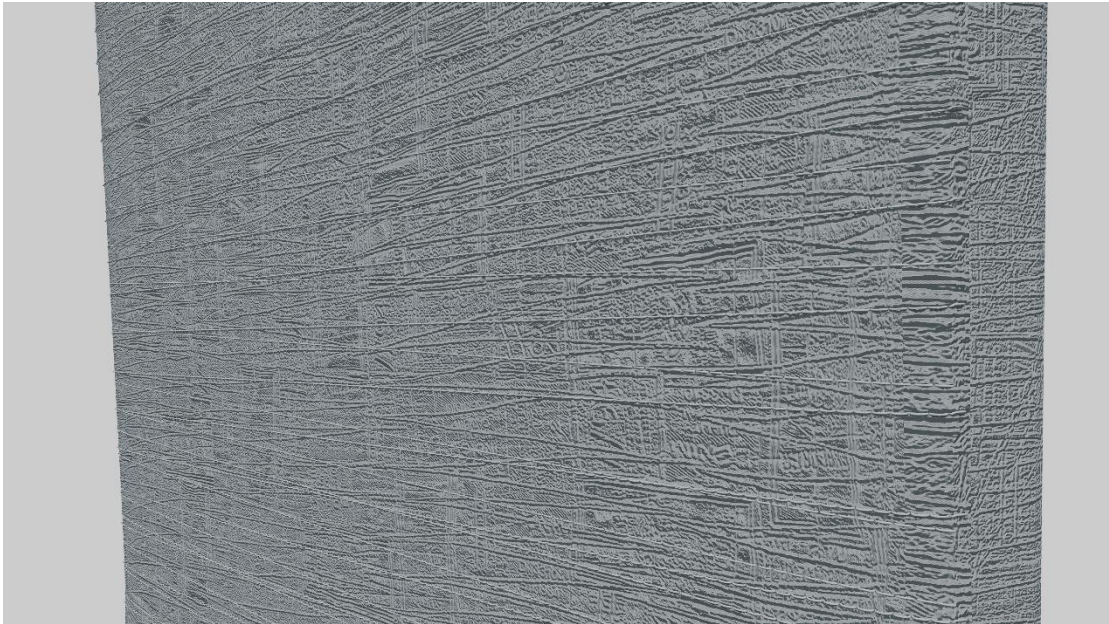


*Figure 60 – Experimental Textile Bag with Structural Distortions*  
(Source: Author)



*Figure 61 – Textile Bag: Side and Front Views*

(Source: Author)



*Figure 62 – Close-up Texture of Textile Bag*

(Source: Author)

This bag design incorporates machine-induced surface distortions as a primary textural and structural element, transforming fabric irregularities into a deliberate material aesthetic. The uneven texture, caused by seam puckering and tension misalignment, introduces a layered, tactile quality that contrasts with the bag's structured form.

The horizontal distortions across the surface mimic the natural grain of weathered textiles or organic erosion patterns, reinforcing the concept of imperfection as a refined design feature. This texture enhances the visual depth of the material, creating an interplay of light and shadow that makes the bag appear more dynamic.

By utilising machine errors as a material-driven aesthetic, this design challenges the standard of smooth, flawless finishes in textile production. Instead, it highlights the raw beauty of industrial imperfections, aligning with sustainable design practices that embrace error as an opportunity for innovation rather than waste.

#### 4.4.3 Seam Puckering as a Design Element

Seam puckering, caused by tension inconsistencies, is repurposed as an **intentional** textural feature.



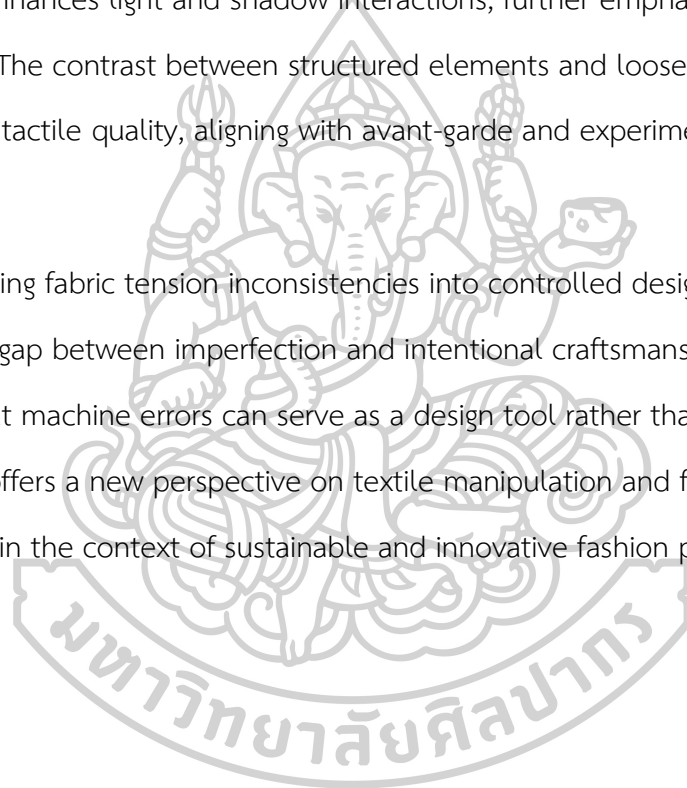
Look 1.1: Ruched Innerwear		Look 1.3 Puckered Pants	
Collaboration	Concept	Process	Outcome
<b>MORE FIEND</b>	Emphasising organic pleats and ruched textures using seam puckering.	Elastic ruched, controlled thread tension, layering.	A voluminous silhouette with a romantic, deconstructed aesthetic.
	Transforming seam puckering into a structured, voluminous texture.	Layered construction, controlled fabric tension, and structured ruching applied to denim and synthetic lining.	A voluminous silhouette with a romantic, deconstructed aesthetic.

Table 7 – Aesthetic Interpretation of Machine Error in the Puckered Design

This design utilises seam puckering as an intentional textural feature, transforming a traditionally undesired effect into a key aesthetic and structural element. The puckering creates a voluminous, layered silhouette, reinforcing a romantic yet deconstructed aesthetic that challenges conventional garment construction.

The gathered texture and irregular surface tension introduce a sense of movement and organic fluidity, making the fabric appear more dynamic rather than static. This distortion enhances light and shadow interactions, further emphasising the depth of the textile. The contrast between structured elements and loose, puckered sections adds a raw, tactile quality, aligning with avant-garde and experimental fashion approaches.

By repurposing fabric tension inconsistencies into controlled design features, this look bridges the gap between imperfection and intentional craftsmanship, reinforcing the concept that machine errors can serve as a design tool rather than a flaw. This technique offers a new perspective on textile manipulation and form-building, particularly in the context of sustainable and innovative fashion practices.



#### 4.4.4 Misalignment as a Design Element

Misalignment, often occurring during label application and fabric panel stitching, is deliberately emphasised in the **jacket and bag designs**.



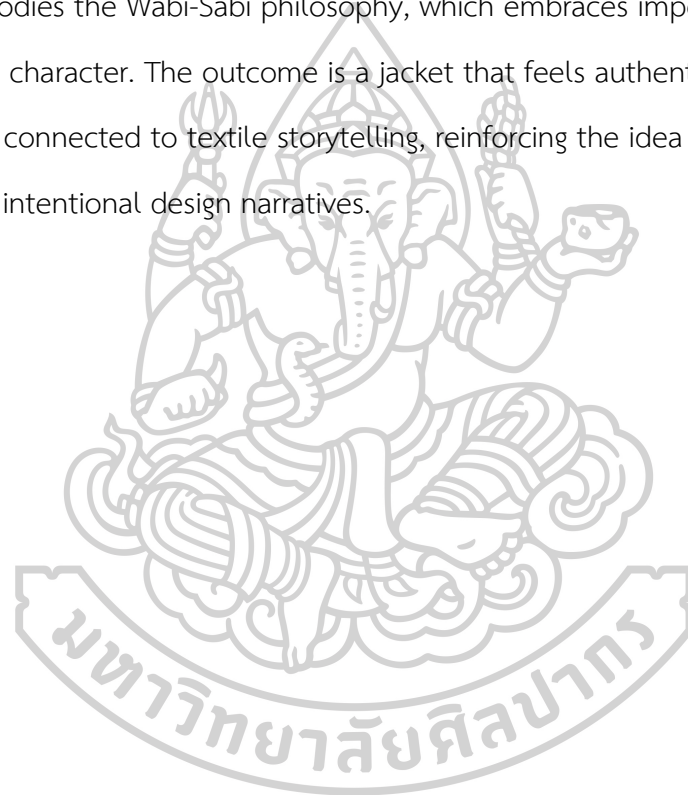
Look 1.2: Patchwork Jacket			
Collaboration	Concept	Process	Outcome
<b>MORE FIEND</b>	Using label misalignment as a fragmented texture.	Freehand stitching of labels, layered composition	A dynamic, asymmetrical textile surface with an intentional sense of disarray.

*Table 8 – Aesthetic Interpretation of Machine Error in the Patchwork Jacket Design*

This design deliberately incorporates misalignment as a visual and structural element, using irregular label placements and fragmented stitching to create a dynamic, asymmetrical surface. The freehand application of labels introduces a sense of controlled disarray, reinforcing an aesthetic that challenges uniformity and precision in garment construction.

The layered composition generates a textured, collage-like effect, emphasising the raw, deconstructed quality of the material. The misaligned panels disrupt traditional symmetry, creating an intentional sense of imperfection that enhances the jacket's individuality. This fragmented assembly is reminiscent of improvised repairs and upcycled textiles, aligning with contemporary sustainability-driven fashion practices.

By reinterpreting misalignment as a stylistic choice rather than a production flaw, this design embodies the Wabi-Sabi philosophy, which embraces imperfection as part of a garment's character. The outcome is a jacket that feels authentic, experimental, and deeply connected to textile storytelling, reinforcing the idea that errors can evolve into intentional design narratives.





Look 2.2: Misaligned Label Bag			
Collaboration	Concept	Process	Outcome
<b>MORE FIEND</b>	Misalignment through deconstructed label layering.	Uneven stitching, freestyle arrangement.	A unique, one-of-a-kind bag where no two pieces are identical.

Table 9 – Aesthetic Interpretation of Machine Error in the Misaligned Label Bag

This design embraces misalignment as a defining aesthetic feature, transforming uneven label placement and freestyle stitching into a textural and visual statement. The bag's fragmented surface, created through deconstructed label layering, results in an organic, raw appearance that challenges conventional uniformity in textile construction.

The irregular stitching and freestyle composition enhance the sense of movement and spontaneity, ensuring that each bag is one-of-a-kind with no identical pieces. The

overlapping textures create a patchwork effect, reminiscent of handcrafted, upcycled fashion, reinforcing a connection to sustainability and imperfection as design principles.

By intentionally using fabric misalignment, this piece highlights the potential of machine-induced errors as artistic expressions, making industrial flaws an integral part of contemporary design aesthetics. This aligns with the research's emphasis on error-driven textile innovation, where imperfections are no longer seen as defects but rather as a means of creating unique, experimental fashion pieces.



#### 4.4.5 Distortion as a Design Element

Fabric distortion, often seen in tension irregularities and cutting errors, is intentionally amplified.



Look 2.1: Cut-Out Dress			
Collaboration	Concept	Process	Outcome
<p><b>MORE FIEND</b></p> <p>V I N N PATARARIN</p>	Distorted cut-outs using raw fabric edges.	Hand-cut openings, strategic reinforcement.	A raw, expressive aesthetic that highlights natural material deconstruction.




Table 10 – Aesthetic Exploration of Fabric Distortion in the Cut-Out Dress

The concept of distortion was further explored through **Look 2.1 and Look 2.2 (Cut-out dress)**, where deliberate irregularity was applied to fabric manipulation. Using dual-layer jersey as the base, the garments were hand-cut to create uneven shapes and organic negative spaces, inspired by the unpredictable outcomes of fabric damage and machine errors. The rough, raw-edged holes mimic the inconsistencies

found in industrial cutting flaws and tension irregularities. The collaboration between **MOREFIEND** and **Vinn Patararin** pushed this idea further by intentionally amplifying these imperfections into a controlled design approach. The layering of the jersey fabric adds structure while maintaining softness and fluidity, resulting in a raw, expressive aesthetic that turns mechanical fault into a striking visual language of disruption and reconstruction.



## 4.4.6 Technique and Materials Overview

Design	Principal Error	Materials	Techniques Applied	Design Outcome
Look 1.1 (Ruched Innerwear) 	Seam Puckering	Lightweight cotton blend	Elastic ruching, overlocking	Organic pleats with textured depth
Look 1.2 (Patchwork Label Jacket) 	Misalignment	Printed denim, Label	Patchwork, layering	A deconstructed, raw aesthetic emphasising material upcycling and visual misalignment
Look 1.3 (Puckered Pants) 	Seam Puckering	<b>Outer layer:</b> Denim (structured, raw edged)   <b>Inner layer:</b> Lightweight synthetic fabric (ruched, flexible)	Structured puckering, layered construction, structured ruching, controlled tension stitching	Voluminous silhouette with exaggerated seams, enhanced movement, and sculptural texture



<p>Look 2.1 (Cut-off dress)</p> 	<p>Distortion</p>	<p>Dual-layer jersey</p>	<p>Hand-cut irregular shapes, layering</p>	<p>Organic negative space with fluidity (Fabric Damage Inspired)</p>
<p>Look 2.2 (Patchwork Label bag)</p> 	<p>Misalignment (Main) Distortion (Support)</p>	<p>Denim, Label, Selected Threads</p>	<p>Frayed edges, asymmetry</p>	<p>Raw, deconstructed aesthetic with dynamic panel placement</p>

Table 11 – Technique and Materials Overview

#### 4.5 Design Conclusion

This research demonstrates that film and textile design are deeply interconnected, each influencing the other throughout the creative process. As someone coming from a film background, I approached this project by using symbolism, slow cinema, and narrative structure as a foundation for understanding flaws not as defects but as design tools.

The film became the **conceptual driver**, shaping the way errors were interpreted emotionally, while the garment designs acted as the tangible expression of those ideas. By blending cinematic storytelling with material experimentation, this research explores the potential of errors as both a narrative and aesthetic device.

The exhibitions at Bangkok Design Week 2025 and VIVA will provide critical opportunities to showcase these outputs to a wider audience. These events will offer valuable feedback and insights into how the designs and films are received beyond academic settings. Together, these platforms will demonstrate the impact of combining symbolic storytelling with material design to address broader themes of imperfection and sustainability.



## CHAPTER 5 CONCLUSION

### 5.1 Conclusion

This research explores how machine errors and upcycled materials can be intentionally incorporated into design, transforming flaws into functional and aesthetic elements. The study combines physical prototypes created with MOREFIEND and a conceptual narrative expressed through film, demonstrating how imperfections such as seam puckering, misalignment, and fabric distortion can become an integral part of textile design.

The collaboration with MOREFIEND resulted in tangible fashion pieces that highlight not only creative potential but also the role of sustainability in addressing pre-consumer textile waste. The integration of film serves as more than just documentation; it provides a narrative framework that contextualises these errors within design thinking, material storytelling, and industry awareness.

The film extends the impact of the prototypes by positioning machine-induced errors as intentional design choices, reinforcing their role in sustainable fashion and creative reuse. Rather than merely showcasing defects, the film bridges the gap between the research problem and the design process, offering an emotional and conceptual perspective on imperfection, transformation, and value creation. By aligning storytelling with design, this research challenges conventional views on textile waste, positioning machine errors as a catalyst for innovation in both fashion and broader creative industries.

## 5.2 Model - Relationships between film and design applications.

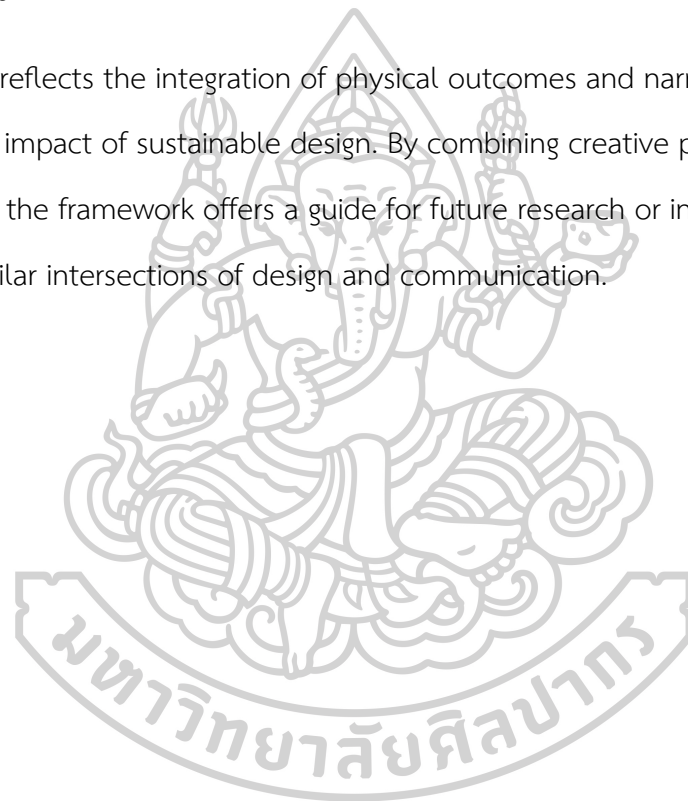
**Postmodernism in Film and Design**

Postmodern Concept	Film	Design
<b>Intertextuality</b>	References to past films, genres, or pop culture ( <i>Kill Bill</i> , <i>Pulp Fiction</i> ).	Uses historical styles in new contexts ( <i>Memphis Group</i> , <i>Glitch Art</i> ).
<b>Nonlinear Structure</b>	Fragmented timelines ( <i>Memento</i> , <i>Mulholland Drive</i> ).	Deconstructed layouts, asymmetric compositions.
<b>Blurring Reality &amp; Fiction</b>	Self-awareness, breaking the fourth wall ( <i>Fight Club</i> , <i>The Truman Show</i> ).	Mixed media, digital-physical blends ( <i>Augmented Reality</i> ).
<b>Pastiche</b>	Stylistic remixing ( <i>Blade Runner's</i> noir-cyberpunk aesthetic).	Combines contrasting styles in one composition.
<b>Minimalism vs. Maximalism</b>	Some postmodern films are excessive ( <i>Moulin Rouge!</i> ), others stripped-down ( <i>Dogme 95</i> ).	Either highly decorative ( <i>Memphis</i> ) or raw/minimalist ( <i>Brutalist design</i> ).
<b>Technological Aesthetic</b>	Digital manipulation, experimental editing ( <i>Enter the Void</i> ).	AI-generated art, glitch design, procedural visuals ( <i>Houdini</i> ).

Table 12 – Relationships between film and design applications

The research developed a framework that combines design prototypes and storytelling to communicate the value of embracing imperfection. The collaboration with MOREFIEND brought a practical element to the research, showcasing how flaws could be intentionally integrated into upcycled materials to create innovative, wearable designs. These prototypes were further contextualised through the film, which captured the conceptual transformation of waste into something meaningful and beautiful.

The model reflects the integration of physical outcomes and narrative tools to amplify the impact of sustainable design. By combining creative processes with visual storytelling, the framework offers a guide for future research or industry practices to explore similar intersections of design and communication.



## 5.3 Body of Knowledge

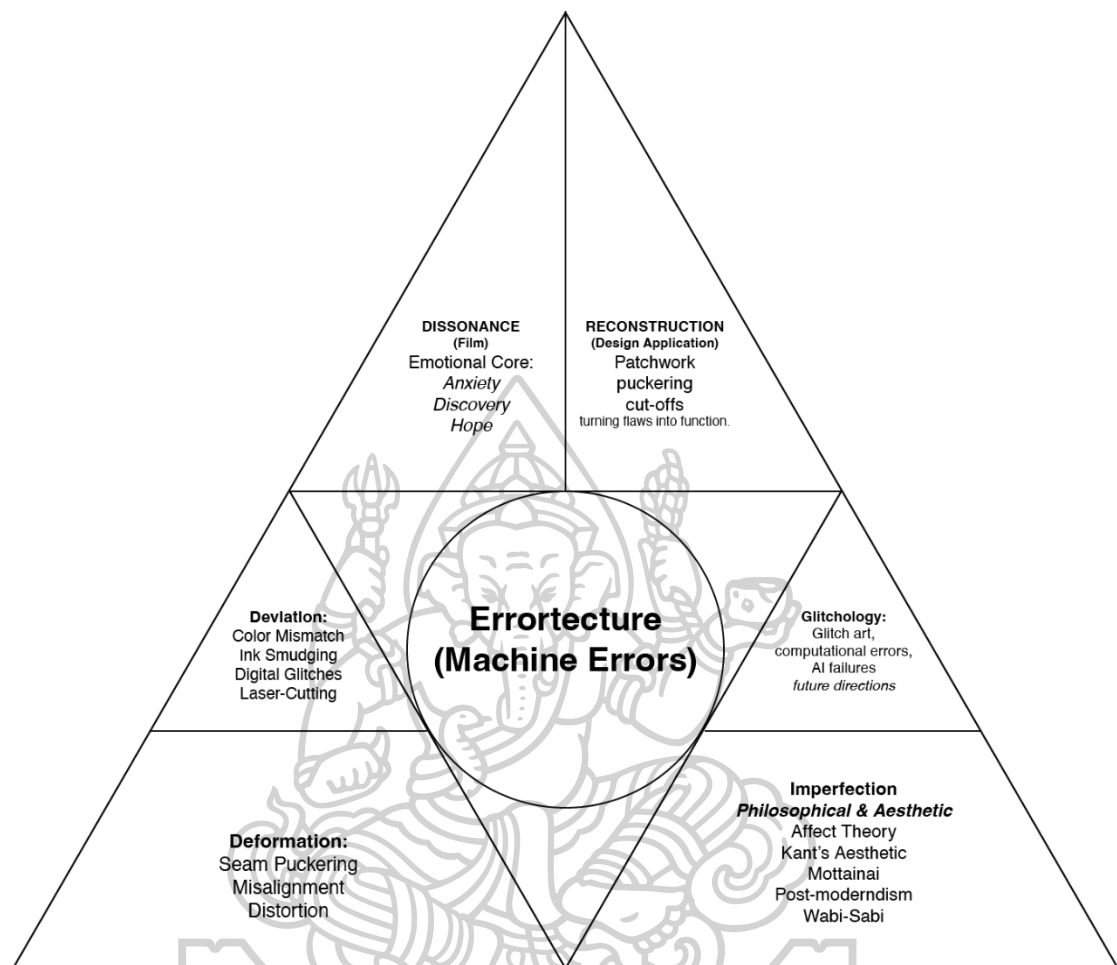


Figure 63 – Minjade Paklapas Errortecture Framework: Theoretical Model of Machine Errors in Design

(Source: Author)

This section introduces a framework I developed myself—*Errortecture*—to map out how machine errors can be reinterpreted and reworked through design. I created this diagram not just to explain the research, but to make sense of how all the messy parts—technical flaws, emotional reactions, and theoretical thinking—connect in practice. The triangular structure allowed me to visualise different layers of the work, from raw defects to deeper reflections on imperfection.

At the centre is the idea of machine errors. These include things like seam puckering, misalignment, and distortion—flaws I kept encountering during my time at the factory. At first, they felt like obstacles, but over time, I started to notice patterns. The same kinds of “mistakes” kept showing up, not randomly, but in ways that made sense once I looked closely. That realisation shifted everything. These weren’t just broken outputs—they were materials I could work with.

On the left side of the triangle is the part I call **Deviation**—where the process goes “off-script.” It includes visual problems like colour mismatch or digital glitches. Beneath that is **Deformation**, which refers to more structural issues like puckering or distortion. This side of the diagram is about the raw inputs—the physical language of the flaws I used as a starting point.

The right side moves into theory. It’s where I brought in ideas from **wabi-sabi**, **affect theory**, and even **postmodernism**, to help frame imperfection as something meaningful—not something to hide. I’ve always felt that the design world spends too much time chasing perfection, and this side of the triangle allows me to explore why that bothers me. It also helped me justify why working with flaws matters beyond aesthetics—it’s about rethinking value.

The top of the triangle focuses on **Reconstruction**, which is where design comes back in. This is where errors are turned into material for new ideas: patchworking, layering, cutting, and repurposing. I experimented with these techniques to see how far I could go with what the machine gave me—flawed or not. It’s also where I tried to answer the question: how can something broken become part of something complete?

Right in the middle of it all is a space I labelled **Dissonance**. This came directly from the emotional side of the project, especially during the filmmaking process. There were moments of frustration, doubt, and anxiety—but also curiosity and hope. The emotional shifts helped me understand that imperfection isn’t just a visual issue, it’s

something we feel too. That middle point became a reminder that design isn't just technical or theoretical, it's also deeply human.

This framework isn't meant to be universal, but it helped me navigate the complexity of my own project. It shows how different parts of the research fed into each other: the factory floor, the studio, the film set, the theory. *Erroritecture* is a way for me to make sense of it all—and to share how embracing what goes wrong can lead to something unexpectedly right.

#### 5.4 Discussion

The integration of physical prototypes and visual storytelling played a central role in shaping the outcomes of this research. Both elements offered different, yet complementary, ways of exploring how machine-induced errors could be reframed within a design context. The prototypes made these ideas tangible—demonstrating how flaws such as seam puckering, misalignment, and distortion could be transformed from rejected defects into purposeful visual features. Meanwhile, the film allowed these transformations to be experienced narratively, expanding their emotional and conceptual depth.

The production process, however, came with several challenges. Balancing creative freedom with clear communication requires thoughtful planning at each stage. While developing the prototypes involved a significant amount of material experimentation, translating these same ideas into a film format demanded an entirely different approach. The film served as a vital tool in conveying the project's core ideas, though its impact relied heavily on how well those abstract concepts were transformed into an accessible visual format. This visual medium gave context and emotional resonance to the material studies, helping to shift how viewers interpret production flaws.

Reflecting on this process underscores how valuable collaboration across disciplines can be, particularly when navigating the challenges of uniting conceptual thinking with hands-on execution. The process brought to light the importance of clear dialogue between theoretical development and real-world making, showing how each perspective contributes differently to the creative outcome.

The results suggest meaningful possibilities for future use. Within the fashion industry, the findings point to a shift in mindset—designers could begin to treat flaws not as problems to be eliminated but as features to be designed with. Garments might intentionally include visual traces of machine error, not only for their texture but as a statement about the realities of production. Reframing failure in this way also supports sustainability, since it offers a way to use materials that would otherwise be discarded. Rather than hiding imperfections, designers can choose to highlight them, fostering a more honest material language.

Beyond textiles, this way of thinking has the potential to inform other fields. In product design, the controlled use of surface irregularity could communicate handcrafted authenticity. In visual arts and digital media, it might align with glitch aesthetics or be used to challenge expectations of precision. These crossovers show that errors as both form and concept—can be useful across a range of practices.

That said, several obstacles remain. Industrial production systems are still geared toward uniformity, and persuading factories to embrace variability may not be straightforward. Additionally, not all flaws can be applied reliably—some are too unstable or lack the visual impact needed for design use. Working with these errors requires a careful balance between letting the machine behave organically and guiding the outcome with intention. This tension between accident and authorship proved to be one of the more difficult aspects of the project.

In the end, this chapter reinforces the idea that error does not have to be something we fix or avoid. It can instead become a foundation for invention, offering new visual

languages and more sustainable design possibilities—if we are willing to shift how we define value in the design process.

### 5.5 Summary of Findings

From my perspective and data, this research found how machine errors in textile production, specifically seam puckering, misalignment, and distortion, can be repurposed into intentional design elements. These errors were applied to prototypes, including a set, a dress, a jacket, and a bag, each demonstrating a different method of integrating imperfections into fashion design.

The study does not focus on reducing machine errors but rather on their creative and commercial potential. By shifting industry perception, this research highlights how value creation, storytelling, and sustainable design strategies can transform what was once considered waste into an asset. Video storytelling serves as a tool to communicate this transformation, ensuring that both industry professionals and consumers understand its practical and aesthetic relevance.

The findings clarify that integrating machine-induced imperfections into fashion can contribute to sustainability and offer a design-driven solution to textile waste.

However, while other errors such as colour mismatch, ink smudging, thread breakage and waste from laser-cutting were considered, they occurred less frequently and were not as adaptable to the design process but could be implemented in the future.

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**INSTITUTIONS ATTENDED** 2021 – 2025

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Ph.D. in Design Arts

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University of Wales (Prifysgol Cymru), United Kingdom

B.A. (Hons) with Second Class Honours,

First Division in Graphic Design

2011 – 2014

Accademia Italiana Florence, Italy

B.A. Visual Communication and Graphic Design

2010 – 2011

Chulalongkorn University, Thailand

Joint International Psychology Program

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2006 – 2010

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## PUBLICATION

Paklapas, M., et al. (2024). Evaluating Perceptions of 'Rainbow-Washing' in Pride Month Marketing Campaigns Among LGBTQ+ and Heterosexual Consumers in Thailand. *Journal of Roi Kaensarn Academi*, Vol. 9, No. 12, December 2024. ISSN 2697-5033 (Online). Published on December 30, 2024.

Paklapas, M., et al. (2024). Combining AI and Creative Design for Automated Fabric Defect Analysis and Pattern Generation from Common Imperfections. *Journal of Roi Kaensarn Academi*, Vol. 9, No. 12, December 2024. ISSN 2697-5033 (Online). Published on December 30, 2024.

## AWARD RECEIVED

## Accomplishments

2025

- Speaker & Curator,  
Bangkok Design Week 2025

- Contributor, OLÁ BL&GL THAILAND IN BRAZIL –  
Collaborated with Thailand's Ministry of Foreign Affairs to promote Thai entertainment globally in São Paulo, Brazil

2024

- Music Producer, The Openspace – Uniquely Together,  
Bangkok Design Week 2024

2023

- Curator, Bangkok Pride - Pride Month 2023

- Creative Director, Lamitak Soundscape Exhibition,  
Bangkok Design Week 2023

2022

- Collaborator & Curator, CO WITH CREATION,  
Bangkok Design Week 2022

