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Digital Printing in Art: Enhancing Narrative and Expression on Contemporary Works

Muhammad Yusuf Masod*

Department of Printing Technology,

College of Creative Arts

UiTM Shah Alam,

Shah Alam, Selangor

Malaysia

Corresponding author

Email: yusuf595@uitm.edu.my

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ABSTRACT

This study explores the utilization of digital printing technologies in contemporary art, specifically examining how these technologies influence narrative depth and artistic expression. Using a case study approach, this research adapts findings from previous study to demonstrate that digital technologies significantly enhance artistic expression and narrative complexity. These findings highlight the capability of digital tools to innovate artistic practices and enrich the interpretation and appreciation of art in contemporary society. The implications of this study are valuable for artists, and educators in understanding and leveraging the interplay between technology and art.

Keywords: *Digital printing, Inkjet, Contemporary art, Artistic expression*

INTRODUCTION

The intersection of art and technology has long been a fertile ground for innovation. Digital inkjet printing, often referred to as 'Giclée', has emerged as a significant technological advancement that has fundamentally transformed the landscape of fine art reproduction and creation. This term, coined by Jack Duganne in 1991, initially denoted the process of creating fine art digital prints made on inkjet printers, celebrated for their high-quality reproduction of colors and intricate details. Despite its technical advantages, the potential of this technology to enhance artistic expression and narrative depth remains underexplored.

The technical sophistication of inkjet printing lies in its mechanism. High-precision microscopic nozzles, approximately 10 micrometers in diameter, are designed to eject ink with high accuracy. These nozzles, integral to achieving consistent color density, are mounted on a rapidly moving carriage assembly, allowing ink to be sprayed onto the paper at velocities ranging from 5 to 10 meters per second. This system encompasses both continuous inkjet (CIJ) and drop-on-demand (DOD) inkjet methods, demonstrating a balance between speed, precision, and artistic quality inherent in digital inkjet technology. The comparison of CIJ and DOD is illustrated in Table 1, highlighting their respective advantages and applications.

Table 1. Comparison between CIJ and DOD (Adapted from Kraushaar, 2018)

| Feature | Continuous Ink Jet (CIJ) | Drop on Demand (DOD) |
|------------------------|---|---|
| Principle | Ejects a continuous stream of ink, which is broken into droplets. | Ejects droplets of ink only when required. |
| Technology Types | Mainly one type with variations. | Includes thermal and piezo technologies. |
| Ink Droplet Generation | High-pressure pump creates a continuous ink stream. | Ink droplets are generated by heat or piezoelectric effect. |
| Speed | Generally faster, suitable for high-speed applications. | Slower compared to CIJ. |
| Resolution | Lower than DOD, due to the continuous stream. | Higher, due to precise placement of ink droplets. |
| Maintenance | Less frequent but can be more complex. | Requires more frequent maintenance. |
| Ink Usage | More wasteful, as unused ink needs to be recycled. | More efficient, as ink is used only when needed. |
| Applications | Industrial coding and marking, high-speed printing. | Desktop printing, photo printing, wide-format printing. |
| Cost | Higher initial cost but efficient for large-scale operations. | Lower initial cost, suitable for smaller scale operations. |

The acceptance and perception of Giclée prints within the art community have evolved significantly (Blythe et al., 2012). Initially met with skepticism, Giclée prints are now celebrated for their indistinguishability from original artworks due to the advanced output quality of inkjet printers. This evolution from traditional Iris prints to the expansive use of DOD inkjet technology signifies a growing recognition of digital prints' artistic value beyond mere reproduction. Such advancements reflect a transformative phase in the art world, redefining the legitimacy and role of digital art forms within the broader artistic community.

This study investigates how digital printing technologies, particularly inkjet printing, can expand artistic themes and modernize classical motifs. By adapting findings from Hoskins, (2006), this research aims to demonstrate the transformative potential of digital tools in enhancing artistic expression and narrative depth. Equipped with these advanced tools, artists can experiment with color, texture, and form in unprecedented ways, pushing beyond traditional boundaries and opening up new possibilities for artistic expression.

LITERATURE REVIEW

The Convergence of Tradition and Innovation: Inkjet Printing in Contemporary Artistic Practices

The digital revolution, epitomized by the advent of inkjet printing technology, has ushered in a new era in the realm of fine art, blurring the lines between traditional craftsmanship and digital innovation. Initially met with skepticism by Brinkerhoff, (1998), digital prints are now embraced for their potential to enhance creative expression. Pioneers such as Cone Editions Press and Nash Editions (Wilhelm, 2006) have played a crucial role in this evolution, reflecting a broader trend towards the fusion of digital and traditional methods.

Inkjet printing, with its roots deeply embedded in both the east and west coasts of the United States, exemplified by pioneers such as Cone Editions Press and Nash Editions (Wilhelm, 2006), has evolved from a novel experiment to a cornerstone of modern artistic production. This evolution reflects a broader trend towards the fusion of digital and traditional methods, where artists no longer view these approaches as mutually exclusive but as complementary forces that enhance creative expression.

Inkjet printing can reproduce images on diverse media, from traditional fine art papers to unconventional substrates, expanding the artistic palette and enabling creators to experiment with new textures, finishes, and forms (Holbert, 2007). This versatility has facilitated the reproduction of existing artworks and opened new avenues for original creations, where the digital process becomes an integral part of the artistic vision.

Recent studies highlight inkjet printing's ability to blend traditional artistic techniques with digital innovation, thereby expanding artistic themes and modernizing classical motifs (Hoskins, 2006). This integration allows for a richer narrative and greater expressive potential, as seen in the works of contemporary artists who combine digital prints with manual interventions.

Digital manipulation tools have revolutionized the way artists interact with their work, allowing for unprecedented control over color, contrast, and composition. The tactile and sensory qualities of inkjet prints, especially on fine art papers, challenge the preconceived notions of digital art as lacking the 'human touch' inherent in manual processes (Brinkerhoff, (1998).

As digital printing studios proliferate globally, and traditional print shops incorporate inkjet technologies (Holbert, 2007), the art market continues to adapt, embracing the unique attributes of inkjet prints. The preservation of traditional fine art printing characteristics, such as deckle edges and edition numbers, serves to bridge the gap between the old and the new, grounding digital prints within the established conventions of fine art.

The replication of historic images through large-format inkjet printing has transformed how we engage with art history, making rare and previously inaccessible works available to a wider audience. This democratization of art challenges us to reconsider the boundaries of artistic authenticity and the role of reproduction in the cultural heritage sector.

Bridging Digital and Traditional: The Synergy of Inkjet Printing with Classic Artistic Practices

The advent of digital inkjet printing technology has revolutionized the reproduction of existing artworks and opened new avenues for artistic creation. The fusion of digital precision with traditional artistry heralds a new era of hybrid practices, where the tactile essence of classic mediums meets the infinite possibilities of digital manipulation.

The capabilities of inkjet technology to accurately replicate a wide spectrum of colors and textures have challenged the historical reliance on purely traditional mediums for artistic expression. Concerns over the longevity of dye-based inks have been addressed by advancements in pigment-based inks, marrying the aesthetic demands of artists with the need for durability (Manning & Thompson, 2003; Leng et al., 2011).

Moreover, the versatility of inkjet printing extends beyond mere reproduction. It facilitates a creative dialogue between digital technology and traditional artistic methods, allowing for experimentation with textures and substrates previously inaccessible (Lhotka, 2006). Contemporary artists leverage these technological advancements to blend digital imaging with classical techniques such as painting, drawing, and etching, enriching the textural and visual complexity of artworks and challenging the dichotomy between digital and traditional art forms.

RESEARCH METHODOLOGY

This case study adapts findings from Hoskins (2006) on the diversity of digital print technologies used in creating high-quality fine art. The methodology includes reviewing existing literature, analyzing case studies of artists' works using digital printing technologies, and discussing how these technologies enhance artistic expression and narrative depth. This approach provides insights into the transformative potential of digital tools in contemporary art.

We analyzed the work "Typo-/Topography of Marcel Duchamp's Large Glass" by Richard Hamilton, a renowned contemporary artist (Hamilton, 2024). This analysis focused on Hamilton's integration of digital printing technologies with traditional methods to reinterpret Duchamp's original notes. The study assessed how digital techniques were employed to enhance narrative depth and artistic expression, highlighting the implications of digital reproduction techniques in challenging traditional concepts of originality and authenticity.

By adapting Hoskins' findings, this research demonstrates how digital printing technologies can expand artistic and reinterpret themes. This methodology offers a comprehensive understanding of the role of digital tools in contemporary art practices.

FINDINGS

Our analysis, adapted from Hoskins (2006), shows that digital printing techniques significantly enhance narrative depth and expressive qualities in contemporary artworks. For instance, the integration of digitally manipulated texts and images in works like Richard Hamilton's "Typo-/Topography of Marcel Duchamp's Large Glass" adds layers of meaning and complexity. This demonstrates the transformative potential of digital tools in contemporary art.

The core analysis addressed the research question: How are digital printing technologies being utilized in contemporary art? By assessing Hamilton's artworks that incorporate digital enhancements, we found that digital technologies expand artistic themes and reinterpret classical motifs within the contemporary art context, thus modernizing and enriching the artistic landscape.

DISCUSSION

This study investigated the utilization of digital printing technologies in contemporary art through a focused case study of Richard Hamilton's work. Our findings emphasize the significant role these technologies play in expanding artistic themes and modernizing classical motifs within the contemporary art context. This exploration highlights how digital tools not only facilitate artistic creativity but also enable artists to reinterpret and revitalize traditional art forms in novel ways.

The interpretations of our results reveal that digital technologies, particularly inkjet digital printing, provide new avenues for artistic expression by integrating technological tools that offer both enhanced accessibility and opportunities for experimentation. This aligns with findings by Zheng and Yan (2022) on the enriching effects of digital image technology in public art design, underscoring the potential of these tools to optimize visual expression (Beris, 2018). However, contrary to concerns expressed by Maljkovic (2017) about digital reliance potentially undermining novice artists' creative and critical skills, our study illustrates how digital tools can complement traditional artistic skills, pushing the boundaries of creativity rather than confining them.

Furthermore, our analysis adds to the discourse by highlighting the dual-edged nature of digital technologies in art: they are catalysts for innovation and reinterpretation but also present challenges regarding the preservation of authenticity and personal artistic expression. This perspective enriches the existing literature by demonstrating that the integration of digital technologies in art is not merely a technical evolution but a complex interplay between old and new artistic paradigms.

The findings adapted from Hoskins (2006) demonstrate the transformative potential of digital printing techniques in enhancing narrative depth and expressive qualities in contemporary art. This study contributes to a broader understanding of how digital tools can expand the creative horizons of artists and enrich the interpretation and appreciation of art in contemporary society.

LIMITATIONS

This study focuses on Richard Hamilton's artwork, limiting its generalizability to contemporary art. It serves as a case example rather than a comprehensive survey of digital printing technologies' impact across various artists and genres. Subjectivity in interpretation is inherent in artistic analysis, and different scholars or viewers might derive different meanings from the same artwork due to personal experiences, cultural background, or theoretical orientation. Acknowledging this limitation enriches the discourse by inviting diverse perspectives and interpretations.

The study may exhibit a technological bias, emphasizing the positive impacts of digital technologies (digital inkjet printing) on art without fully addressing potential drawbacks, such as diminishing traditional artistic skills or the unique qualities of handcrafted art. Digital technologies offer revolutionary tools but also bring challenges that could homogenize artistic expressions if not critically engaged with. Future research should explore these aspects, examining both the opportunities and challenges posed by digital integration in the arts.

Acknowledging these limitations strengthens the study's credibility and provides a clear pathway for future research. Each limitation highlights an area for further investigation, suggesting that our understanding of digital technologies in art will continue to evolve as more comprehensive and diverse studies are conducted.

CONCLUSION

In this research, we explored how digital printing technologies are being utilized in contemporary art, focusing specifically on their influence on narrative depth and artistic expression. Our findings reveal that these technologies not only facilitate the expansion of artistic themes but also enable artists to reinterpret classical motifs within a modern context, thereby enriching the artistic landscape.

From this study, we have learned that digital tools are transformative within the art world, providing artists with unprecedented capabilities to experiment and innovate. This has significant implications for artistic practice, as it suggests a continuing evolution of art forms facilitated by technological advancements. Additionally, the integration of digital technologies into art has profound implications for art history and criticism, challenging traditional interpretations and inviting a reevaluation of what constitutes artistic authenticity and value.

The value of this research in its demonstration of the complex role that digital technologies play in contemporary art. It highlights the dual capacity of these tools to enhance creative expression and provoke critical discussions on the authenticity and preservation of cultural heritage. This study thereby contributes to a broader understanding and appreciation of how technology reshapes cultural and artistic landscapes.

Looking ahead, future research should aim to broaden the scope of investigation to include more diverse artistic expressions and multiple artists. This expansion would allow for a more comprehensive understanding of the impact of digital technologies across different artistic mediums and cultural contexts.

Furthermore, investigating the long-term effects of these technologies on artistic creation and public reception will be crucial in fully appreciating their role and potential in the evolving art world.

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Contrasting Realities: Italian Advertisements and Non-Sexist Linguistic and Social Norms

Piermauro Catarinella*

*Academy of Language Studies, UiTM Shah Alam,
Shah Alam, Selangor,
Malaysia
Corresponding author
Email: piermauro@uitm.edu.my*

Suhardi Kram*

*Faculty of Sports Science & Recreation, UiTM Sarawak,
Samarahan, Sarawak,
Malaysia
E-mail: suhardikram@uitm.edu.my*

Omar Colombo*

*Language Centre, Universiti Brunei Darussalam,
Bandar Seri Begawan,
Brunei Darussalam
Email: omar.colombo@ubd.edu.bn*

Muhammad Alhakeem Husain*

*College of Creative Arts, UiTM Puncak Perdana,
Shah Alam, Selangor
Malaysia
Email: hakeem4958@uitm.edu.my*

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**These authors contributed equally to this study*

ABSTRACT

This research aims to scrutinise whether sexism is confined solely to the Italian advertising domain or extends into the language employed by the general populace and the broader cultural fabric of society. In Italy, despite numerous efforts made over the past decades to eradicate sexism in advertising campaigns, marketers frequently resort to its various manifestations, deeming it a powerful tool for attracting potential consumers. The prevalent utilisation of the female image in a sexist manner, portraying women as objects of desire, remains commonplace. Surprisingly, even renowned influencers aligned with the radical feminist movement often incorporate such tactics in their social media content. Sexism manifests through two principal avenues: firstly, the erotic portrayal of women's bodies and/or their sensual behaviours, frequently coupled with language expressions encompassing with dual meanings; secondly, the perpetuation and reinforcement of stereotypical gender roles. While the latter has largely diminished in the contemporary era, the former persists prominently. This case study research employs a qualitative analysis approach. Various data sources, including legal documents, historical records, and contemporary media, are critically analysed. The findings suggest that, despite the societal and linguistic rejection of

sexism in contemporary Italy, where gender equality prevails across social, economic, and legal realms, the advertising industry continues to rely on such practices heavily.

Keywords: *Advertisements, Contemporary Society, Italy, Sexism*

INTRODUCTION

Italian advertising has garnered a longstanding reputation for its frequent utilisation of erotic and sexist imagery, particularly in its portrayal of women, across diverse mediums such as television, billboards, and radio. This trend, which gained momentum in the 1970s and persists in various iterations today, underscores complex interactions among historical, cultural, and socioeconomic elements within Italy (Eos, 2023). During the 1950s and 1960s, women were consistently depicted as subservient to men in Italian advertising, reflecting the prevailing patriarchal norms of the time. Such depictions mirrored the societal framework where men held authoritative positions within the family unit, while women were predominantly confined to domestic roles and had limited involvement in the workforce beyond familial boundaries (Burei, 2021).



Figure 1. It illustrates a 1950s advertisement portraying a woman tending to her child’s clothing and engaging in household chores, reflecting the societal expectations of women’s roles during that era in Italy.

(Source: <https://www.ebay.it/itm/134798506149>)



Figure 2. It depicts a 1960s advertisement showcasing the idealised and stereotypical portrayal of a woman preparing a cake.

(Source: <https://www.pinterest.it/pin/507288345502287840/>)

In Italy, the advertising landscape underwent a profound transformation following the pivotal year of 1968, commonly referred to as the year of the sexual revolution and this epochal period heralded a significant shift in societal attitudes toward sexuality, gender roles, and cultural norms. As a result, the portrayal of women in advertisements underwent a profound evolution (Giuffrida, 2023). Furthermore, during this same period, numerous feminist groups emerged, advocating for women's rights and striving for complete freedom and parity with men. Prominent figures within the Italian Women's Liberation Front, such as Luciana Castellina, Giglia Tedesco, Marisa Rodano, Nilde Iotti, and Lina Merlin, rose to prominent positions. Nilde Iotti served as President of the Chamber of Deputies from 1979 until 1992, while Lina Merlin played a pivotal role in reshaping Italian law by successfully pressuring Parliament to abolish the so-called "bachelorette clause", which mandated the dismissal of female workers upon marriage (Arcobello, 2022). The progress of women and their liberation within society was remarkable. Departing from traditional depictions of women in subordinate roles, advertisements progressively portrayed women engaging in overtly erotic behaviours, often characterised by partial nudity. This departure from previous portrayals symbolised the ethos of the sexual revolution, which advocated for the liberation of sexual expression and the dismantling of repressive societal norms. Thus, advertisements reflected the evolving zeitgeist of the era, embracing newfound concepts of sexual freedom and empowerment, albeit through a lens often criticised for objectifying and commodifying women's bodies (Garzina, 2023).



Figure 3. It represents a 1970s advertisement featuring a young woman endorsing branded jeans, accompanied by a suggestive invitation stating *Chi mi ama mi segua* (Who loves me, follow me). (Source: <https://storiadellamoda.wordpress.com/2012/10/06/jesus-jeans-scandal-oliviero-toscani/>)

The emergence of erotic and sexist imagery in Italian advertising can be traced back to the post-war era, characterised by significant socio-cultural transformations. The 1970s marked the onset of a burgeoning consumer culture and the ascendance of mass media, prompting advertisers to adopt increasingly provocative strategies to vie for attention amidst intensified competition. Within the competitive advertising landscape, where the primary objective is profit maximisation, the deployment of erotic and sexist imagery emerges as a potent tactic to captivate consumer interest and stimulate sales (Renda, 2024). Advertisers leverage the long-established notion that "sex sells" to craft provocative campaigns designed to elicit visceral reactions from audiences. Furthermore, the predominantly male-dominated advertising industry often fosters an environment where the objectification of women is normalised, perpetuating the cycle of sexism in advertising. Despite the pervasive presence of erotic and sexist imagery in Italian advertising, there has been growing resistance and backlash from various segments of society (Barracane, 2023). Advocacy groups, feminist movements, and regulatory bodies have increasingly called for greater accountability and regulation within the advertising industry to address the perpetuation of harmful objectification of women. Commencing in 1983, amidst the rising influence of radical feminist groups in both politics and broader society, concerted efforts were made to challenge the prevalence of sexist and excessively erotic advertisements in Italy. This period witnessed the introduction and deliberation of numerous legislative proposals within the Italian parliament aimed at prohibiting advertisements that portrayed women solely as objects of sexual desire. From 1983 to the present day, there have been more than sixty-one proposals to regulate advertising campaigns deemed sexist, erotic, vulgar, or disrespectful toward women, yet none have been ratified into legally binding norms (Siccardi, 2023). Despite these endeavours, all such proposals have been consistently rejected by the Constitutional Court, the highest judicial body responsible for determining the constitutionality of legislative measures, throughout the years. At the core of the court's rulings have consistently been articles 21 and 33 of the Italian Constitution, which unambiguously affirm the freedom of artistic expression and scientific inquiry. Within this constitutional framework, advertisements, including those considered erotic and sexist, were granted the status of "artistic creations". This legal stance effectively protected advertisements from censorship or prohibition based on their content, thereby setting a legal precedent that upheld the autonomy of artistic expression, irrespective of its societal implications (De Paola, 2017). The rulings of the Constitutional Court underscored a delicate equilibrium between safeguarding individual freedoms and regulating commercial speech. While acknowledging the concerns articulated by feminist groups regarding the objectification and commodification of women in advertising, the court upheld the paramountcy of constitutional guarantees of free expression and artistic freedom. Consequently, advertisements, regardless of their contentious or provocative nature, were deemed to fall

within the purview of constitutionally protected speech, thus thwarting efforts to legislate against their content. The decisions of the court reflect broader discussions concerning the regulation of media content in democratic societies, particularly the tension between freedom of expression and the imperative to shield against material that is harmful or offensive (Tonala, 2023). In the realm of Italian advertising, the rulings of the Constitutional Court emphasised a dedication to preserving fundamental rights and freedoms, notwithstanding societal pressures and demands for more stringent regulation. Nevertheless, these rulings also sparked continuing debates regarding the ethical obligations of advertisers and the necessity for enhanced self-regulation within the industry to tackle issues concerning gender portrayal and the propagation of detrimental stereotypes. In contemporary Italy, the advertising sector operates within a self-regulatory framework commonly referred to as a code of conduct. This code, intended to regulate the content and practices of advertisers, ostensibly seeks to uphold responsible and ethical advertising standards. However, despite the existence of this code, many individuals within the advertising industry frequently overlook it, viewing the depiction of women in sensual, sexist, and erotic contexts as a potent and effective strategy for driving advertising campaigns. Additionally, the aforementioned code lacks provisions for any form of sanction, whether pecuniary or otherwise, in the event of its violation, leaving enforcement entirely to the discretion of those involved in advertising and marketing endeavours (De Lucia, 2023). Despite heightened awareness of gender equality issues and the objectification of women, deeply ingrained cultural norms and commercial imperatives frequently overshadow efforts, perpetuating a cycle of sexualized and stereotypical portrayals of women in advertising. Driven by the pursuit of profit and market dominance, advertisers and influencers often prioritise shock value and sensationalism over considerations of ethical or social responsibility, resulting in a proliferation of advertisements that reinforce harmful stereotypes. The ineffectiveness of self-regulatory measures in curtailing the use of sexualized and objectifying imagery underscores the limitations of voluntary industry standards in addressing systemic sexism and misogyny. While codes of conduct may establish guidelines for ethical advertising practices, they often prove inadequate in the absence of robust enforcement mechanisms and meaningful consequences for non-compliance. The persistent reliance on sexualized and objectifying depictions of women in advertising mirrors broader societal norms and power dynamics that prioritise profit over principles of equality and respect. Eroticism in advertising is a subject of significant interest among both academics and professionals in marketing and communications. The use of erotic imagery, language, and messaging is increasingly prevalent in contemporary advertising, aiming solely to capture the public's attention and evoke emotions and desires (Riccardi, 2023). Some argue that Italian advertising ranks among the most sexist globally, perpetuating and reinforcing stereotypes and discriminatory portrayals, relegating women to decorative and hypersexualized roles. Moreover, advertising sexism yields detrimental effects on society, ranging from linguistic influences to women's diminished roles in the workforce and the perpetuation of patriarchal structures (Podestà, 2021). The central focus of this research is precisely to examine whether advertising sexism reflects a patriarchal society where women are marginalised compared to men, including from a linguistic perspective.

RESEARCH AIMS AND QUESTIONS

The central focus of this research is to investigate the impact of Italian advertisements and modern social media influencers' snapshots on non-sexist linguistic and social norms.

Specifically, this study seeks to:

- 1) Analyse the extent to which Italian advertisements reflect or challenge sexist norms in society, and explore the historical and contemporary portrayal of gender roles in Italian advertisements, identifying patterns and shifts over time.

- 2) Investigate the legal and constitutional underpinnings that protect artistic expression in Italian advertisements and examine their implications for addressing sexism.
- 3) Focus on recent examples of sexist advertisements, assessing their influence on public discourse, societal attitudes, and linguistic expressions in Italy.
- 4) Understand the dynamics between advertising practices and social media posts, public perception, and legal responses over the decades, highlighting changes and continuities in addressing sexism.

To achieve these four aims, this paper addresses the following related research questions:

- 1) How do Italian advertisements and social media posts from the 1950s to the present day depict gender roles and sexism?
- 2) In what ways do Articles 21 and 33 of the Italian Constitution influence the content and regulation of advertisements?
- 3) What is the impact of contemporary sexist advertisements and social media posts on Italian language and societal norms between 2020 and 2024?
- 4) How have public and legal responses to sexist advertisements in Italy evolved from the 1950s to the present?

By addressing these questions, the study aims to provide a comprehensive understanding of the interaction between Italian advertisements and non-sexist linguistic and social norms, contributing to the broader discourse on gender representation in media and society.

LITERATURE REVIEW

Numerous studies in the past have delved into the realm of sexist advertisements in Italy, with researchers from diverse fields such as psychology, marketing, and sociology often reaching similar conclusions. The majority of these studies (Galliano, 2021; Arienzo, 2022; Cambianica, 2023) assert that the utilisation of erotic and sexual imagery, coupled with language that may verge on pornographic or adult content, contributes to the effectiveness of advertising objectives. Indeed, visual advertising images must command attention, provoke reactions, elicit specific emotions, or offer entertainment. Nudity, particularly of females, or highly erotic images are undeniably adept at capturing public attention. Whether these images and texts portray women in an offensive, sexist, or demeaning manner is inconsequential because the primary objective is to startle and intrigue consumers. Frequently, these depictions insinuate that women, like the product being advertised, are commodities for sale, with little relevance to the actual product being promoted. Subliminally, the message conveyed is that a woman is merely an object of sexual gratification, with certain images evoking scenarios bordering on violence, including sexual violence. All these elements have been shown to contribute to the success of campaigns aimed at generating profits. It is noteworthy that the annual revenue from sexist advertising campaigns has been on the rise each year, as evidenced by financial reports (Polimi, 2023) within this sector (from 75 billion euros in 2020 to 87 billion in 2021, 93 in 2022, and 106 in 2023).

An isolated study titled “Does Sex Really Sell? Paradoxical Effects of Sexualization in Advertising on Product Attractiveness and Purchase Intentions”, however, presents contrasting findings. The authors (Gramazio et al., 2021) aim to demonstrate that the commonly held belief in the effectiveness of the “sex

sells” approach in advertising campaigns should not be assumed, as it does not necessarily lead to higher profits in sales. They argue that sexualized marketing strategies yield negative outcomes and should be abandoned for several reasons:

“Women responded negatively to female sexualized ads, expressing higher negative emotions, which in turn disinclined them to purchase these products. On the other hand, men did not show any significant increase in product attractiveness or purchase intentions toward female sexualized ads compared to neutral ads. Sexualized ads may fail to achieve their intended purpose, which is to sell products. These findings raise questions for advertising agencies regarding the justification for the proliferation of such ads” (Gramazio et al., 2021: 715-716).

However, Gramazio et al. are unable to provide a rational explanation for why sexist advertisements generated increased revenue during the years 2020-2021. Furthermore, their conclusions are based on a limited sample size (105 women and 97 men), which may not accurately represent the entire Italian consumer society.

To comprehend why advertising in Italy has consistently resorted to depicting women in a sexist manner with highly erotic and sensual content over the years, it is instructive to consider Florence Rochefort’s *Femminismi. Uno sguardo globale* (Feminisms. A global look), published in 2022. The author discusses feminisms in the plural form, comparing the initial post-war women's movements with those of the present era. The feminist movements of the 1950s and 1960s, including the Italian Women’s Liberation Front and the Women’s Liberation Movement, vigorously advocated for the advancement of women’s status within society and achieved significant milestones in the years that followed, such as securing the right to divorce and abortion. In 1964, Margherita Huck became the first Italian woman to lead the Astronomical Observatory of Trieste, elevating its international reputation. Conversely, contemporary feminists have predominantly engaged in political activism, aligning openly with left-wing factions and neglecting issues common to all women. Present-day feminist movements do not encompass all women but rather exclude some based on ideological biases. Notably, in recent years (2018-2023), feminists have refrained from taking a stance on the sexist portrayal of women in advertising. Many of them, having transitioned into influencers, frequently rely on images of their sensual bodies to endorse their products or those of prominent brands (Terranova, 2024).

RESEARCH METHODOLOGY

Study Design

This research adopts a qualitative approach, specifically utilising a case study methodology. Case study research is particularly effective for an in-depth understanding of complex issues within their real-life context (Yin, 2018). This methodology is well-suited to explore the intricate relationship between Italian advertisements and non-sexist linguistic and social norms.

Data Collection

The study encompasses the following components for data collection:

- 1) **Constitutional Analysis:** The research examines Articles 21 and 33 of the Italian Constitution, which safeguard the freedoms of expression and artistic creation. The Italian Constitutional Court’s interpretations, which consistently affirm that advertising images and accompanying

linguistic expressions are forms of art and not subject to censorship, are scrutinised. This legal framework sets the stage for understanding the boundaries and liberties within which Italian advertisements operate.

- 2) **Contemporary Newspaper Articles:** A corpus of newspaper articles from major Italian publications, spanning from 2020 to 2024, is collected. These articles are selected based on their coverage of explicit sexism in advertising. The selection criteria include articles discussing public reactions, legal challenges, and societal implications of sexist advertisements. This period was chosen to provide a current perspective on how sexist advertising influences contemporary language and social norms.
- 3) **Historical and Contemporary Advertisements and modern social media posts:** Advertising images from the 1950s to the present day, including social media ads, are compiled. The selection process involved identifying advertisements that have been considered sexist but deemed legal under Italian laws and jurisprudence. This historical range allows for the analysis of the evolution of advertising practices and their alignment with or divergence from non-sexist norms over time.

Data Analysis

The analysis is conducted through thematic analysis, a method well-suited for identifying, analysing, and reporting patterns (themes) within qualitative data. The steps involved in the analysis include:

- A) **Familiarisation with Data:** Immersing in the data by reading and re-reading the newspaper articles, constitutional texts, and advertisements to identify initial patterns and insights.
- B) **Coding:** Generating initial codes from the data. This involves systematically coding interesting features across the entire data set and collating data relevant to each code.
- C) **Generating Themes:** Collating codes into potential themes, gathering all data relevant to each potential theme, and reviewing these themes to ensure they accurately represent the data set.
- D) **Defining and Naming Themes:** Refining the specifics of each theme and the overall story the analysis tells, generating clear definitions and names for each theme.
- E) **Producing the Report:** Integrating the analytic narrative and data extracts, relating the analysis to the research questions and the existing literature.

FINDINGS AND DISCUSSION

In this section, we delve into a troubling yet prevalent phenomenon in contemporary advertising: the utilisation of sexist imagery to shock and allure consumers. Italy has witnessed a concerning phenomenon wherein women are portrayed in sensual or erotic poses solely for commercial purposes (see Cambianica, 2023). This trend serves as a stark reminder of the enduring belief within advertising circles that shock value holds paramount importance. These advertisements often employ double entendres and associate the imagery with language carrying double meanings, frequently alluding to sexual connotations, to

further engage the audience. The perpetuation of such imagery not only reinforces harmful gender stereotypes but also highlights the pressing need for a critical reassessment of ethics within the advertising industry. Despite concerted efforts by various organisations and individuals committed to protecting women's dignity, endeavours to eliminate sexist and vulgar billboards and television advertisements have largely been unsuccessful (see Rochefort, 2022). These promotions persist and flourish, eluding removal or censorship (Landoni, 2023). Even advertising disseminated through social media channels is steeped in sexism and the nudity of the female form. Indeed, female influencers resort to these elements because they constitute two winning components that ensure a successful strategy (Besso, 2023).



Figure 4. It illustrates an ad for a restaurant *Il Galletto*, displayed in Barletta, Italy, in 2020.

(Source: <https://www.vanityfair.it/news/approfondimenti/17/02/22/pubblicita-sessiste-stop-sindaco-imola>)

The term *petto* carries a dual meaning, referring both to “filet chicken” and “woman’s breast”. In this context, the advertisement inevitably assumes a sexual connotation. This billboard, featuring a semi-nude woman, has sparked considerable debate. The Imola City Council has publicly condemned the advertisement, arguing that it does not align with the values of civility and respect for women. Nonetheless, it is also evident that content with double meanings, even if vulgar, generates discussion, which is a fundamental advertising objective: to provoke public discourse.



Figure 5. It showcases an advertisement for the pasta brand *Antichi Sapori*, displayed in the city of L'Aquila in 2021

(Source: <https://www.rete8.it/cronaca/234pubblicita-con-corpi-di-donne-la-denuncia-marketing-sessista/>)

The advertisement features a scantily clad woman alongside the suggestive phrase *La Pasta più Bona che c'è* (the most delicious pasta on the market). It captures the viewer's attention through the use of the term *BONA*, which carries a dual meaning: “delicious” in the context of food and “sexy” when describing a woman. Some women's rights organisations have criticised the advertisement for its sexist use of imagery and condemned the message. By exposing the body of a naked or semi-naked woman, the advertisement evokes “mouth-watering” hunger as well as other primal instincts. Women's associations have urged the municipal administration to remove the poster, but their efforts have been unsuccessful.



Figure 6. It depicts a billboard erected in Misano Adriatico, Italy, in 2022.

(Source: <https://www.ilfattoquotidiano.it/2020/01/11/la-carne-non-e-tutta-uguale-i-manifesti-pubblicitari-di-una-macelleria-scatenano-le-polemiche-lideatore-li-rimuove-e-si-difende-mi-riferivo-alle-differenze-tr-a-le-carni/5664687/>)

The proprietor of Butcher Shop Ugolini created and erected a billboard featuring two female buttocks: one youthful and toned, the other slightly more mature with visible cellulite. The advertisement emphasises that “meat is not all the same”, with *CARNE* translating to “meat” in Italian. The image circulated widely on social media, sparking numerous protests, ultimately leading the proprietor to remove it after one year. This type of advertising is not only offensive to women but also sets a poor example for young people. These gender stereotypes, described by some as humorous, are not only in poor taste but also deeply offensive and vulgar, and should therefore be censored.



Figure 7. It depicts a 2021 sexist advertisement for a rotisserie in Aversa, Italy.

(Source: <https://www.cronachedellacampania.it/2019/11/te-la-diamo-gratis-la-patata-acquistando-due-polli-scoppia-la-polemica-per-la-pubblicita-sessista/>)

The proprietor of a rotisserie had posters erected with a “winking” yet undoubtedly sexist promotion. The advertisement offers a seemingly innocuous deal: purchasing two chickens entitles customers to free potatoes (*la patata*). However, the large advertising poster leaves little room for misinterpretation: a buxom woman in a bra appears in an alluring manner. The phrase *Te la diamo gratis* (we give it for free) takes on a double meaning, as in Italian slang, *La Patata* (potato) is a euphemism for a woman’s vagina. Many individuals on social media expressed outrage over the photo of the poster and the blatant sexist connotation associated with the word *patata* when referring to a woman.



Figure 8. It depicts a 2022 advertisement for electric scooters, in Ragusa, Italy.

(Source: <https://www.ilgiornale.it/news/cronache/vienimi-dietro-sono-elettrica-cartellone-sessista-ragusa-1829361.html>)

This is another sexist advertisement featuring an almost naked young girl on a motorcycle with the slogan *Vienimi dietro, sono elettrica* (Come behind me, I am electric). The double entendre in the ad's message is unmistakable, as, in Italian, *vienimi dietro* can also carry the very explicit sexual meaning of “cum behind me”. The billboard was displayed on the streets of Ragusa, Italy, sparking a wave of indignation due to the image and content being considered sexist and potentially offensive to many citizens' sensitivities. Despite the criticism, the company that utilised the advertisement never removed it, as it was deemed capable of boosting the company's business income.

International renowned brands, including Gucci, Prada, and Dolce e Gabbana, utilise sexist ads for their business.



Figure 9. It portrays a 2022 Dolce & Gabbana advertisement.

(Source: <https://www.blitzquotidiano.it/photogallery/dolce-gabbana-la-pubblicita-che-incita-alla-gang-bang-del-2007-foto-2133923/>)

The ad, displayed in several Italian and European cities, depicts a model in a swimsuit approaching a woman lying on the floor, while a group of men looks on. This scene has faced significant criticism for its portrayal of simulated sexual violence against a woman. Representing a woman as submissive to a man in 2022 is entirely unacceptable.

As mentioned previously, renowned female influencers also employ sexist and provocative imagery to endorse their products or those of other brands, as this mode of self-representation is deemed lucrative from a business perspective (see Arienzo, 2022). One notable example is Chiara Ferragni, who, boasting over 27 million followers, is regarded as a prominent figure in contemporary left-wing feminism (Galici, 2023).



Figure 10. It illustrates one of Chiara Ferragni's Instagram posts from 2023, in which she promotes her women's lingerie products.

(Source: <https://www.affaritaliani.it/costume/chiara-ferragni-in-lingerie-la-foto-allo-specchio-e-super-sexy-foto-573108.html>)

It is not unexpected that even world-famous influencers resort to sexist imagery purely for profit. It does seem somewhat contradictory that those who profess to be feminists — and should therefore safeguard, protect, and celebrate the female figure — choose to display their nudity in public. This conveys the message that women don't need to be competent or intelligent to be successful and visible; simply flaunting their bodies is enough. However, this is not surprising in the case of Chiara Ferragni, as she does not represent the original values of feminism (Soncini, 2023).

Nowadays, a new form of advertising is emerging in Italy; however, it is premature to assert whether the depiction of the woman figure, often portrayed in sensual and erotic positions, will be replaced by images representing the LGBTQIA+ community. The inception of this new trend gained momentum in February 2023, during the Sanremo Italian Music Festival, where web star Fedez and singer Rosa Chemical delivered passionate and explicit homosexual kisses onstage (Manca, 2023). Several prominent brands have already started incorporating images related to various LGBTQIA+ groups to promote their products. Nevertheless, this subject warrants further investigation and may be the focus of future research.

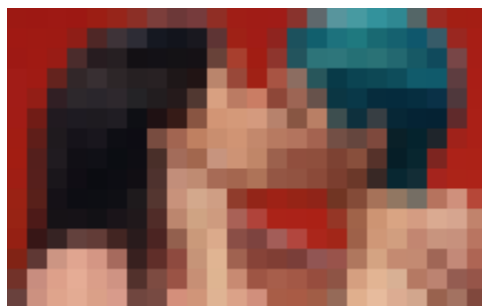


Figure 11. It showcases a 2024 Dolce & Gabbana advertisement designed to appeal to LGBTQIA+ groups, which are gaining influence within national and EU Institutions.

(Source: <https://www.ilfattoquotidiano.it/2021/05/27/russia-censura-lo-spot-di-dolce-e-gabbana-rifutano-i-valori-della-famiglia-e-propagandano-relazioni-sessuali-non-tradizionali/6212020/>)

The European (EU) Parliament, commencing in 2008, endeavoured to halt sexist and demeaning advertising targeting women through legislation intended to be effective across all member states, albeit without success. The legislation merely urged Member States to ensure individually that advertising and marketing materials do not contain elements that, when considered in context, endorse, glorify, or incite

violence against women (Mosca, 2022). EU member states have thus far failed to enact substantial and efficacious legislation aimed at prohibiting advertisements featuring nudity, vulgarity, or objectionable stereotypes. In this domain, apart from nominal codes of conduct, punitive legal frameworks are notably absent, leaving regulatory oversight primarily reliant on the discretion of industry stakeholders (Rubin, 2024).

It is widely acknowledged (and *notoria non egent probationem*) that advertising in Italy and other EU countries has long depicted women as sexual objects, a trend that persists today. Fortunately, advertising, while a potent communication tool, does not accurately reflect contemporary society at large. Indeed, women now occupy positions of significant influence and have achieved full equality with men in various fields (Baldi, 2024). The current Italian Prime Minister, Giorgia Meloni, the leader of the main opposition party, Elly Schlein, and prominent figures such as the Presidents of the Supreme Court of Cassation - Margherita Cassano - and the Constitutional Court - Silvana Sciarra - exemplify women in positions of power who excel in their roles. Additionally, numerous journalists, deputies, senators, ambassadors, and scientists are women (Colarusso, 2024). Furthermore, the Italian language as a whole cannot be labelled as sexist, as it now demonstrates full respect toward the female gender and the role of women in contemporary society (Balsamo, 2024). It has undergone significant transformations both grammatically (elimination of the so-called generic or marked masculine) and lexically (introduction of female terms for all professions and institutional positions), aligning with the stringent guidelines set forth by the EU Commission and Parliament (Marazzini, 2022).

CONCLUSION

The findings of this research indicate that sexist advertising, which portrays women in sexually suggestive or pre-orgasmic poses, is employed solely for commercial purposes to startle and capture the attention of the public, including potential consumers. It is an effective tool for boosting the sales of certain products or enhancing the sponsorship of commercial activities (see Galliano, 2021). However, it does not appear to convey "negative values" capable of influencing language, both written and spoken or society as a whole, given that women have achieved full equality with men in every sector of public and private life. Therefore, it is unwarranted to assert, as some do, that advertising mirrors contemporary society and represents its shared ideas and values (Deleonardis, 2024). Additionally, the notion that sexist advertising, depicting women as objects that incite sexual urges, may contribute to so-called feminicides lacks factual and legal basis, especially considering that Italy, among all EU countries, ranks low in terms of feminicide rates. Progressive countries, led by left-wing and centre-left parties, which advocate greater cultural sensitivity against patriarchy and in favour of feminist activism, have higher incidences of feminicides than Italy (Bulian, 2023). Nonetheless, the utilisation of eroticism in advertising continues to spark debate and controversy, due to its possible cultural implications and its potential impact on individuals' mental health.

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Naxi Ethnic Group's Seven-Star Sheepskin Shawl: A Semiotic Analysis

Liu Chang*

*College of Creative Arts, Universiti Teknologi MARA (UiTM) Kelantan Branch,
Kota Bharu, Kelantan Darul Naim,
Malaysia*

Corresponding author

Email: Charlene_LiuChang@outlook.com

Mat Redhuan Samsudin*

*College of Creative Arts, Universiti Teknologi MARA (UiTM) Kelantan Branch,
Machang, Kelantan Darul Naim,
Malaysia*

Email: redhuansamsudin@gmail.com

Zou Yuwen*

*Faculty of Communication and Media Studies, Universiti Teknologi MARA (UiTM),
Shah Alam, Selangor,
Malaysia*

Email: Eurus_ZouYuwen@outlook.com

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**These authors contributed equally to this study*

ABSTRACT

With the rapid development of economic globalisation, the process of modernisation has brought great challenges to the development of Chinese ethnic minority Naxi costumes while changing our lifestyles. Although the importance of traditional ethnic costumes as an important cultural heritage has attracted extensive attention from scholars at present, studies that explore traditional ethnic costumes in depth from a semiotic perspective are still relatively scarce. The seven-star sheepskin shawl is the most distinctive attire of the Naxi ethnic group. Beyond its practical functions of providing warmth and durability, as well as its decorative purpose, it encapsulates the rich historical and cultural significance of the Naxi people. This paper delves into the seven-star sheepskin shawl from a semiotic perspective, examining it at three levels: syntactics, semantics, and pragmatics. Morris's semiotics consists of three integral parts: syntactics, semantics, and pragmatics. Through the application of Morris's semiotic theory alongside case studies, this paper concludes that the Naxi seven-star shawl embodies stylistic art, cultural connotations, and functional categories. The objective of this paper is to deepen our comprehension of Naxi culture, aiding us in grasping the cultural significance concealed within the seven-star sheepskin shawl. Furthermore, it provides valuable insights and inspiration for contemporary dress design.

Keywords: *Naxi ethnic group, Ethnic costume, Seven-star sheepskin shawl, Semiotic analysis*

INTRODUCTION

Ethnic costumes serve not only as people's daily attire but also as a symbolic system expressing national culture. They act as carriers of this culture, reflecting various aspects of social development, change, and ideological shifts. The Naxi people, as a distinctive ethnic minority, possess a unique artistic tradition and a rich history deeply rooted in traditional culture (Sang, 2021; Sun & Pan, 2019). The seven-star sheepskin shawl, as a highly prestigious and unique national characteristic of Naxi traditional dress, is one of the indispensable daily garments for Naxi women. The regional characteristics of the seven-star sheepskin shawl give the Naxi dress both a functional and decorative form of beauty (Ren & Shen, 2019). Studying it can further our understanding of the cultural characteristics and customs of their ethnicity, and it also holds important significance for the inheritance of their ethnic culture. In the backdrop of ongoing economic globalisation, the consumerist culture of Western societies has permeated China extensively. This cultural influence propagated through mediums such as clothing advertisements, apparel products, and multinational brands, has notably impacted residents, particularly those in developed regions and belonging to the middle and upper classes (Qi, 2022). This cultural convergence has not only affected the apparel industry but has cast its influence across various sectors, underscoring the increasing importance of exploring and safeguarding the distinctive national characteristics of culture.

Semiotics, as a vital methodology in contemporary social sciences and humanities, can comprehensively and creatively integrate information from various disciplines. It breaks down disciplinary boundaries, liberating the theoretical system from the constraints of separate disciplines. Modern semiotics, emerging in the 1960s based on modern linguistics, structuralism, and cultural anthropology, has become a prevalent interdisciplinary and comprehensive discipline (Abikenov & Kudaibergenov, 2022). While a substantial amount of recent semiotics design research has concentrated on areas like brand advertising, packaging design, and product creative design (Bambang et al., 2022; Hong & Shi, 2023; Vallverdu-Gordi & Marine-Roig, 2023), there has been a noticeable gap in applying semiotics to the study of ethnic costumes. Especially notable is the scarcity of scholarly endeavours focusing on semiotic analyses of the Naxi ethnic group's seven-star sheepskin shawl. It is crucial to use semiotics to study the Naxi seven-star sheepskin shawl, as it not only aids in unravelling the cultural connotations behind the garment but also establishes a theoretical foundation for the modern design of ethnic costumes.

Therefore, this study will explore the semiotics of the seven-star sheepskin shawl of the Naxi people. From a design perspective, the study will focus on the seven-star sheepskin shawl of the Naxi people, analysing it at three levels: syntactics, semantics, and pragmatics.

LITERATURE REVIEW

It has been thousands of years since the Naxi people emerged and developed from primitive society. As witnesses of history and inheritors of culture, the Naxi people possess splendid artistic and cultural treasures. In 2009, the Naxi traditional costume was listed on the World Intangible Cultural Heritage List, and since then, it has gradually attracted extensive attention from scholars (Wang, 2019). As an important part of China's minority cultures, Naxi costumes have distinctive ethnic characteristics and reflect the traditional customs and aesthetic concepts of the Naxi people.

Currently, academic research on Naxi costumes focuses on cultural symbolism, change, inheritance and protection, and the development of costumes (Yang, 2021). For example, Sang (2021) studied the historical background and cultural connotation of Naxi traditional costumes, exploring their evolution and characteristics by analysing the impact of productivity progress, totem culture, and geographic

environment. Shang and Wang (2021) took Naxi costumes as the object of their study, conducting field research to explore the history of the development of traditional Naxi costumes, their cultural connotation and morphological characteristics, and offering insights into the development of Naxi costume cultural heritage. The above literature shows that current research on Naxi costumes mainly focuses on aspects of change and development, craftsmanship, and cultural symbolism. However, as an important symbol of Naxi culture, there is still a lack of analyses of the patterns, colours, and symbolism of Naxi costumes from the perspective of semiotics.

In addition, the seven-star sheepskin shawl, commonly known as 'wearing the star and the moon', has rich cultural connotations as a highly prestigious and unique national characteristic of the Naxi costume. As an important symbol of Naxi women's costumes, it is usually made from whole sheepskin, carefully selected from black or white sheep or goat skins. After cutting, the shawl presents a unique style in which the outline of the upper part is mainly square while the lower part is mainly curved. The shawl is wrapped around with a wide white band and knotted in front of the chest, with the entire piece draped on the back (Chen, 2005). The unique regional characteristics of the Naxi sheepskin shawl not only add practical functional value to the Naxi costume but also impart decorative artistic beauty. The integration of function and art into one form of dress is an important factor that has inspired people to explore and dedicate themselves to its inheritance.

RESEARCH METHODOLOGY

Semiotic Theory

Semiotics has its roots in the Middle Ages, gaining significant theoretical frameworks in the early 19th century with the classifications proposed by American philosopher Peirce (1897): indicative, denotative, and symbolic. These classifications laid the groundwork for subsequent developments in semiotic theories. In the early 20th century, Swiss linguist Saussure introduced the concept of structuralist linguistics, which significantly influenced the trajectory of semiotics (Niu, 2020). In the mid-20th century, American scholar Morris (1971) further refined the semiotic system, elucidating the connections between linguistics, semiotics, and behaviour. Today, semiotics stands as a successful theoretical system that permeates various fields including culture, media, and the arts, providing a crucial theoretical foundation for diverse disciplines.

As a semiotics trailblazer, Morris posited that semiotics encompasses three dimensions: syntactics, semantics, and pragmatics (Arafah & Hasyim, 2019). These dimensions are structured around the triadic relationship involving the sign vehicle, designatum, and interpretant, as depicted in Figure 1. It's noteworthy that Morris, in subsequent research, redefined pragmatics. He underscored the relationship between signs and sign interpreters, addressing the biological aspects of semiotics—specifically, delving into the psychological, biological, and social phenomena inherent in the role of signs. This redefinition laid the groundwork for the emergence and establishment of pragmatics (Niu & Dechsubha, 2022).

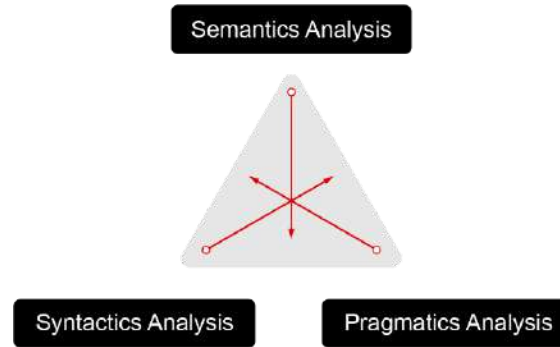


Figure 1. Morris's three-dimensional model of semiotics
(Source: Author's drawing.)

To summarise, Morris's semiotic theory comprises three dimensions: syntactics, semantics, and pragmatics. Within these dimensions, syntactics analyses various combinations of symbols, disregarding the specific meaning of symbols or their relationship to the behaviours they represent; semantics delves into the meaning of symbols across different representations; and pragmatics explores the origin, usage, and the roles symbols play when they manifest in behaviours. It's crucial to emphasise that Morris's semiotic theory not only establishes a theoretical foundation for the analysis and comprehension of symbols in design but also underscores the versatility of semiotics in diverse fields.

Research Design

This study proposes to employ a semiotic analysis method using Morris's semiotic theory. Dress, as a representation of an ethnic group, is not merely a physical manifestation of ethnic culture but also functions as a symbolic system expressing that culture (Ermilova, 2020). Furthermore, the Naxi seven-star sheepskin shawl serves not only practical purposes like cold protection, durability, and decoration but also encapsulates the rich historical and cultural connotations of the Naxi ethnic group. Therefore, leveraging Morris Semiotics, this study aims to analyse the Naxi seven-star shawl through a case study, exploring the syntactics, semantics, and pragmatics dimensions. The purpose is to elucidate the stylistic art, cultural connotation, and functional scope of the Naxi seven-star shawl.

From the perspective of design Morris Semiotics, syntactics studies the formal composition between design symbols, involving formal aesthetics and structural theories such as modelling structure; semantics studies design symbols and their meanings, involving theories in design psychology; pragmatics studies the relationship between design symbols and their users, involving communication, behavioural and sociological aspects.

FINDINGS

This section examines the Naxi seven-star sheepskin shawl through Morris's semiotics. Syntactics analysis covers style, pattern, and colour, while semantics explores totem worship and national beliefs. Pragmatics delves into the Naxi people's relationship with their cultural practices, detailed below.

Syntactics Analysis

According to Morris's semiotic theory, syntactics composition studies the way symbols are combined into composite symbols (Niu, 2020). As one of the Naxi dress symbols, the seven-star sheepskin shawl is involved in the form of symbol composition as well as aesthetic and stylistic features. In the following, we will analyse the syntactics structure of the seven-star sheepskin shawl in terms of styles, patterns, and colour in turn.

Styles

The seven-star sheepskin shawl is made of sheepskin and padded cloth sewn together, as shown in Figure 2. In terms of shape, the top one-third of the white sheepskin is covered with a rectangular black fabric, which is called the "sheepskin neck", or "you e jian" in Naxi. The upper edge of the sheepskin neck is symmetrically embellished with two pick embroidery embroidered with rows of auspicious motifs of the white cloth belt, these two cloth belts for the strap, the Naxi language called "you e huo", wear the sheepskin draped on the back, will be two long straps in front of the chest cross, and then circled back behind the lower end of the sheepskin fastened, as shown in Figure 2. On the lower edge of the sheepskin neck, seven small discs with a diameter of about ten centimetres are arranged in a line. These seven discs appear in the shape of a large circle within a small circle, hence the name "Seven Stars". Each "star" in the centre of each hanging two buckskin ropes, a total of 14, known as the "sheepskin beard", the Naxi language known as "you e beng". The lower edge of the white sheepskin is cut into a frog body shape comparable to the size of the human back is also an indispensable element of the seven-star sheepskin shawl.



Figure 2. Seven-star sheepskin shawl wearing (A) Front view (B) Back view
(Source: Beijing Institute of Fashion Technology Museum.)

As shown in Figure 3, the style of the shawl is modelled in a T-shape, and the overall modelling contour presents the characteristics of roundness above and below and symmetry between left and right. There is a unique sense of rhythm: firstly, the shape is simple and interesting, balanced and symmetrical, the frog body at the bottom of the sheepskin is rounded, and the lines of the silhouette are hooked upwards from the two sides with a relatively small arc from top to bottom, and then continue to extend slowly downwards with a sharp corner, and finally pull out a small sharp corner downwards in the middle. The rounded arc contrasts with the sharp corner, giving the outline of the frog body of the shawl a certain tension and a strong sense of rhythm. Secondly, the combination of movement and static. The 14 thin

ropes on the "seven stars" will move with the movement of the person in the process of movement, which fully demonstrates the charm of the seven-star shawl.

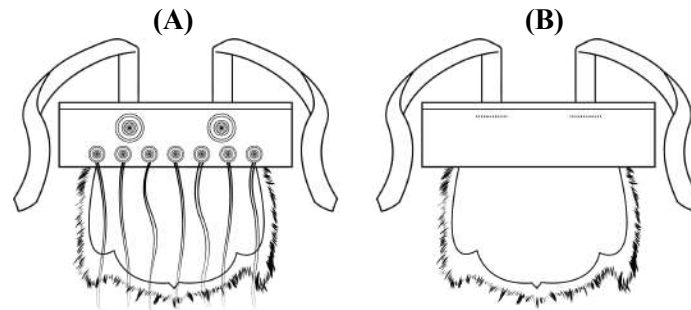


Figure 3. Seven-star sheepskin shawl style (A) Front view (B) Back view
(Source: Author's drawing.)

Patterns

While the patterns of Naxi costumes exhibit richness and diversity, there are shared characteristics, specifically the integration of abstraction and figuration, along with neatness and orderliness (Li, 2019). As illustrated in Figure 4A, the "seven stars" feature concentric rings embroidered with radial patterns in coloured threads. The largest ring displays a swirling radial pattern, eventually encircled with coloured threads. The pattern elements within the "seven stars" are simple, yet through numerous repetitions and layers, the overall visual impression is straightforward yet not monotonous, and rich without being cluttered.

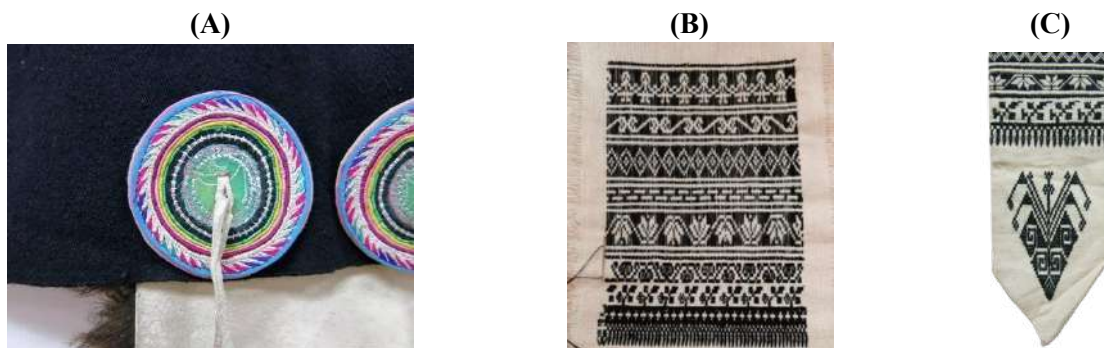


Figure 4. Seven-star sheepskin shawl details. (A) "Seven stars" (B) Embroidery on straps (C) Bottom of straps

(Source: Beijing Institute of Fashion Technology Museum.)

The tail of the white backstrap of the shawl is adorned with intricate embroidery featuring a small bipartite continuous pattern of rows, depicting hand-holding dance teams, balustrades, and flowers (Figure 4B). The large butterfly motif at the bottom is triangular, complementing the shape of the end of the fabric band (Figure 4C). The overall visual impression is symmetrical, balanced, and combines simplicity with richness.

Colour

In terms of colour, the front of the thickened rectangular piece of fabric in the upper part of the Seven Stars Shawl is generally crafted from a dense material in a more intense colour, such as black or dark blue. This creates a stark contrast with the white sheepskin in the lower part. The reverse side is typically lined with blue fabric, providing a strong contrast with the underside of the white sheepskin, which is made from black goat's wool. The two back straps are also in a pure white colour, contrasting with the darker pattern on the straps. There are no large blocks of extremely pure, bright colours; instead, there are small, colourful "seven stars" as accents. As a result, the entire shawl is simple and elegant, straightforward and substantial, with strong contrasts but without being ornate or cumbersome.

Semantics Analysis

According to Morris's semiotic theory, semantics studies the meaning of symbols (Niu, 2020). As one of the symbols in Naxi attire, the seven-star sheepskin shawl is closely linked to the survival environment and the history and culture of the Naxi people. In the following sections, the semantics of the seven-star sheepskin shawl will be analyzed to the living environment of the Naxi people and the totem worship practices of the Naxi community.

Naxi Living Environment

The Qiang ethnic group, as the ancestors of the Naxi, resided in the Northwest Plateau of China, where animal husbandry was the predominant livelihood (Zhang, 2023). The cold climate of the Northwest Plateau is characteristic of plateau regions, making the skins and furs of sheep and cows highly sought-after materials for clothing. To adapt to a lifestyle of nomadic herding, conquest, and migration, their main clothing predominantly consisted of fur products. In the Tang and Song dynasties, both Naxi men and women "all wore sheepskin." Later, the Naxi people migrated to the Yunnan-Guizhou Plateau, which has a low-latitude plateau climate with large temperature differences between day and night, rainy summers, dry and windy winters, and strong ultraviolet radiation. Such a climate requires people to wear clothing with strong warmth and high heat absorption capacity. Sheepskin shawls, wool felt, and mainly black clothing colours are undoubtedly the most suitable clothing for this climate.

Sheep Totem Worship

The ancestors of the Naxi lived for an extended period in the highlands of northwest China and the Yunnan-Guizhou Plateau. The environmental conditions of these regions shaped the lifestyle of their ancestors, who were engaged in domesticating and herding sheep. In the uncomplicated life of ancient times, sheep served as a source for all their basic needs, providing sustenance and protection from the wind and cold. The close connection between the Naxi people's diet, clothing, and transportation with these animals led to their natural veneration of sheep as totems (Xue et al., 2021).

The Naxi people hold the belief in "San duo" (Li et al., 2020). "San duo" is considered the highest protective deity among the Naxi people, described in legend as riding a white horse, adorned in white armour, wearing a white helmet, and carrying a white spear. "San duo" is said to be born as a goat and serves as a shepherd, dedicated to safeguarding the Naxi people. The Naxi ancestors integrated the "san duo," representing protection and the sheep, combining both to enhance the spiritual power and strength of the "san duo." The manifestation of the sheep totem in the seven-star shawl is evident in the two straps

of the shawl. As depicted in Figure 5, the back strap of the seven-star sheepskin shawl vividly simulates a sheep's tail.

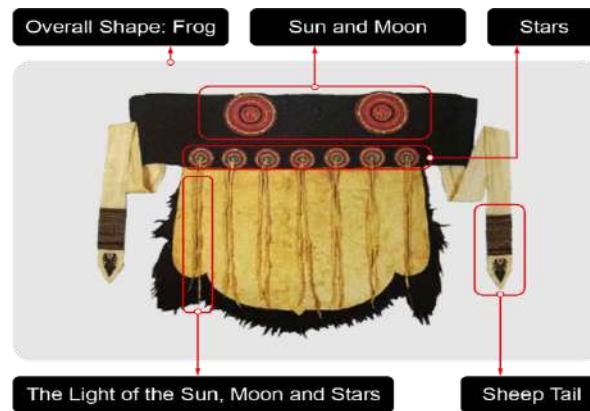


Figure 5. Seven-star sheepskin shawl totem.
(Source: Author's drawing.)

Frog Totem Worship

In Naxi folklore, frogs are considered the first creatures to emerge in the world, and the Naxi people refer to them as "wisdom frogs," symbolising wisdom (Qin, 2019). The sheepskin eyes of the shawl can be interpreted as the eyes of the frog. When combined with the shape of the frog's body at the hem, it gives the appearance of a frog lying on the back of a person, guarding them (Figure 5). According to folklore, the "mei li dong a jin shan" god, intended to bestow wisdom water upon the beings of the world. However, due to a miscommunication by crows, people ended up drinking the wisdom water. In response, numerous birds and beasts descended to pluck hairs from the man's body. While enduring the attack, the frog cleverly licked up the remaining wisdom water at the bottom of the bowl. With ingenuity, the frog feigned panic, pointing to the river and claiming that the wisdom water had been poured into it. Subsequently, the frog jumped into the river as if to drink the water, luring away the birds and beasts and rescuing the humans. In gratitude for the frog's rescue, the sheepskin shawl was cut into the shape of the frog's body—a token of respect for the frog. This tradition has been passed down through generations and has evolved into the unique aesthetic interest the Naxi people hold for this attire today.

Celestial Worship

The sheepskin eyes on the seven-star shawl symbolise the sun and the moon, while the seven small discs represent the seven stars. This signifies Naxi women metaphorically "carrying the sun and the moon on their shoulders, and the stars on their backs," celebrating the virtue of Naxi women's hard work from morning to evening. The 14 thin ropes on the "seven stars" symbolise the light of the stars, connoting the meanings of light and warmth (Figure 5). The "seven stars" motif on the shawl is intricately crafted, typically in the form of a sunburst pattern. The details hold traditional significance, with the outer circle representing the feather, the inner circle symbolising a rainbow, the blue colour on the inner side representing ice and water, and the sheepskin whiskers on the inner side. These elements not only symbolise the rays of the stars but also suggest a clear spring in the water (Figure 6A).

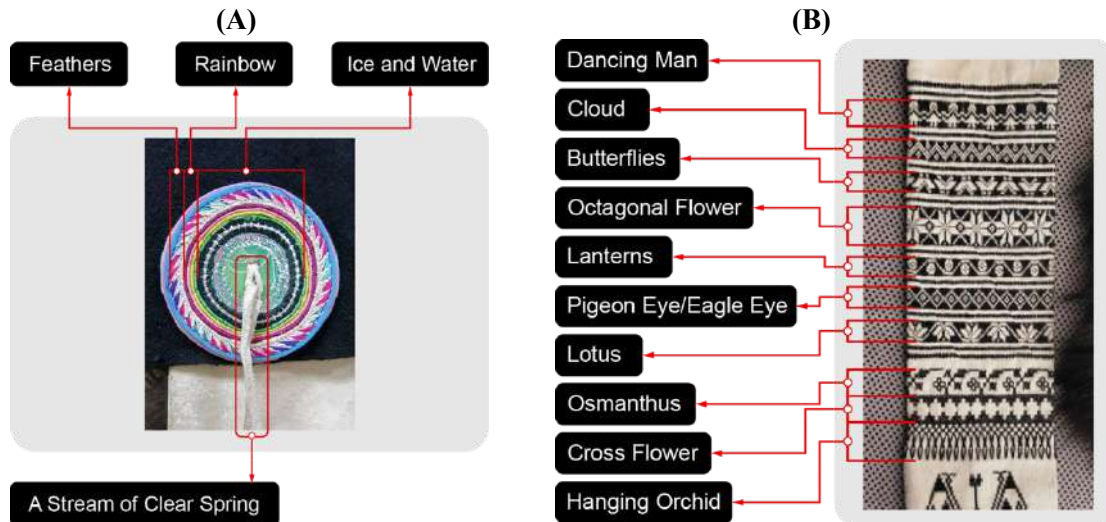


Figure 6. Seven-star sheepskin shawl totem (A) "Seven stars" (B) Embroidery on straps
Source: Author's drawing.

Totem Worship of Other Motifs

The pattern elements on the backstrap are rich, including animal patterns, plant patterns, celestial patterns and figure patterns, mostly common elements in life. Figure 6B shows the pattern of the Naxi seven-star sheepskin shawl straps, from top to bottom the 1st row of Naxi beating jumps, Naxi beating jumps are neat, requiring everyone to be in step. The 2nd row is a cloud pattern. The 3rd row is a small butterfly. There is a Naxi proverb that says: work as hard as a bee to live as beautiful as a butterfly. Therefore, the butterflies highlight the female people's inner expectations of life. The 4th row is the octagonal flower. The 5th row is a lantern, which symbolises a prosperous life. The 6th row is interpreted as pigeon's eyes or eagle's eyes, because Naxi embroidery is passed down from mother to daughter, and the understanding and interpretation of each pattern varies from region to region of the Naxi people. The 7th row is the lotus flower, a motif of Tibetan Buddhism, which the Naxi people believe in. The 8th row is the osmanthus flower, which means gold and jade. The 9th row is the crocus flower, which is very common in Tibetan areas and is also used by the Naxi because of its proximity to Tibetan areas. The 10th row is a hanging orchid, meaning a good harvest.

Pragmatics Analysis

According to Morris's semiotics theory, pragmatics studies the effects of symbols (Niu, 2020). As one of the Naxi dress symbols, the seven-star sheepskin shawl has a close relationship between it and its users. In the following, the discourse use of the seven-star sheepskin shawl will be analysed sequentially in terms of protecting the Naxi people as well as beautifying the Naxi people.

Protecting the Naxi

The Naxi seven-star shawl is used in the body, and not only has the practical function of protecting the body but also the function of spiritual protection (Qiu et al., 2023). Naxi women carry heavy loads on their backs when they work, and use sheepskin to protect their backs, effectively reducing the damage

caused by the heavy loads, which is why the Naxi women's "seven-star shawls" are both aesthetically pleasing and have a practical function. In addition to its powerful functionality, after the degradation of its functionality, the shawl eventually rose to a spiritual level. Hanging totems and motifs on the body naturally creates a spiritual protective function. The shape of the imitation frog is a kind of protection by totem worship.

Beautifying the Naxi

The combination of totem and clothing has a significant decorative function and increases the beauty of clothing. The expression of formal beauty is important in clothing design, which not only expresses the basic laws of clothing design but also the basic laws that art should follow (Xie & Xiao, 2019). The seven-star shawl, on the other hand, fully embodies the Naxi people's incessant pursuit of beauty. The unique shape of the seven-star sheepskin shawl adds to the overall silhouette of the Naxi dress with its unique ethnic characteristics. For the "seven-star shawl", this pursuit is not only reflected in the form but also the pursuit of inner beauty, spiritual beauty. Just as the Naxi people worship the sun, moon and stars on the totem object sheepskin, reflecting the Naxi people's traditional virtues of "wearing the stars and the moon" and "hard-working and courageous".

CONCLUSION

In this study, the author uses Morris's semiotics theory to analyse the Naxi seven-star sheepskin shawl in terms of syntactics, semantics and pragmatics, and the results of the study show that the Naxi seven-star sheepskin shawl, as a kind of dress symbol, is reflected in the plastic art, cultural connotation and functional scope. To be specific, in the syntactics analysis, the seven-star sheepskin shawl exhibits a distinctive form and rhythm. Its left-right symmetry and simple design convey an overall sense of simplicity and elegance. The frog body contour adds tension and a dynamic rhythm to the shawl. The 14 thin ropes on the "seven stars" enhance its movement, contributing to the shawl's dynamic quality. The predominant solid colour imparts a sense of simplicity and weightiness, while the balanced and symmetrical local embellishments, rich in patterns, showcase the unique form of the seven-star sheepskin shawl with rhythmic elegance. In the semantic analysis, the seven-star sheepskin shawl not only reflects the Naxi people's reverence for animals, plants, celestial bodies, and figures but also conveys profound meanings and good wishes. In the pragmatic analysis, the relationship between the seven-star sheepskin shawl and the Naxi people is explored to delve into its practical protective function and aesthetic role. In general, clothing is not only a mere symbol but also has the deep connotation of its ethnic culture and its physical and spiritual functions behind the symbol.

This study not only helps researchers understand the cultural connotations behind the seven-star sheepskin shawl but also offers valuable insights and inspiration for modern costume design. Future research should explore the semiotic analysis of Naxi traditional costumes in a more comprehensive and in-depth manner. This approach can provide a more systematic understanding of the composition of Naxi traditional costumes and the meanings they imply, as well as offer theoretical guidance and a scientific basis for cultural protection and inheritance. Importantly, it can provide designers with new perspectives and fresh thinking to examine traditional costumes, aiming to translate the expressions, meanings, and spirits of traditional costumes into the language of modern costume design, thereby enriching modern costumes with deeper meanings and diverse forms of expression.

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Computer Augmented Reality Model-Based Interactive Teaching System for Chinese Line Drawing CAD

Yang Yawen*

*College of Creative Arts, Universiti Teknologi MARA (UiTM),
Shah Alam, Selangor Darul Ehsan,
Malaysia
Email: 2021174307@student.uitm.edu.my*

Valerie Michael*

*College of Creative Arts, Universiti Teknologi MARA (UiTM), Cawangan Sarawak,
Kota Samarahan, Sarawak,
Malaysia
Email: valeriemichael@uitm.edu.my*

Shahriman Zainal Abidin*

*College of Creative Arts, Universiti Teknologi MARA (UiTM),
Shah Alam, Selangor Darul Ehsan,
Malaysia
Corresponding author
Email: shahriman.z.a@uitm.edu.my*

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** These authors contributed equally to this study*

ABSTRACT

To achieve automatic target region detection, an interactive image segmentation technique has been always used as preferences. However, when it comes to the implementation of computer aided design, there is a problem with the structured method. The technique of stroke contour extraction based on boundary detection is used in this investigation. The high-frequency lifting filter improves the original image, and the grey scale and spatial distribution of the pixels are used to determine how the pixels are distributed on the pen track. The segmentation of mural lines and strokes is achieved well in a limited space. To ascertain each pixel's grey value distribution, a non-realistic rendering technique is suggested. Draw in accordance with the boundary tangential flow and each pixel's category. In conclusion, the two approaches can cover more application scenarios and yield good results in the extraction of creative materials from Chinese classical mural painting while maintaining the entire shape of the original strokes in the painting.

Keywords: *Augmented reality, CAD interaction, Edge detection, High frequency lift filtering, Line drawing*

INTRODUCTION

Line painting takes line as the main body, which is not only an art form (Zainal Abidin et al., 2008), but also a basic element to form visual image (Abidin et al., 2011; Akner-Koler, 2000). In most cases, it is related to intuitive thinking (Toyong et al., 2021). The extraction of the line depiction of the mural can not only help us better understand the existing shapes and images, but also help us apply these traditional elements to industrial design and create new forms and images (Tovey, 1997; Vihma, 1995). The traditional boundary detection algorithm based on Canny, such as the Canny operator, can extract the image boundary effectively (Li & Liu, 2022). However, because the line drawing of the mural is fixed, and the change of its width can reflect the artistic characteristics of the mural, when using this operation for line drawing, it will cause reactions on both sides of the stroke, resulting in a stroke associated with two edges (Jamaludin et al., 2013; Mohamed Kamil et al., 2018).

The global boundary probability detection operator (gPb) has high precision and can only extract a single boundary for some small strokes, but it has some disadvantages such as single pixel width and weak continuity. In the absence of bone feature extraction, the stroke size obtained by gPb operator can reflect the stroke size, but cannot extract the stroke well. The Gaussian filter divides the mural into several closed Spaces of similar colour and texture, so the line strokes are often cut off to form a separate space from the local background, thus adding additional boundaries (Li et al., 2021). The closed region generated by gPb-owt-ucm algorithm is segmented by the boundary segmentation algorithm based on Canny operator, which effectively overcomes the defects of the traditional boundary detection algorithm. In this project, the high frequency ascending filter is used to simplify the mural background, and the edge extraction and threshold segmentation are combined to automatically extract the line strokes. The diversity of media and the discipline have enabled artists to explore more media when producing creative artworks. These collaborations have expanded to produce new findings and allow new perspectives on disciplines in art (Michael & Rahman, 2021). Therefore, we need more forms of comprehensive art expression. The advantages of hybrid art practice forms can play a greater art (Michael et al., 2017; Goel, 1995).

LITERATURE REVIEW

Initial Drawing of Line Strokes

A. High Frequency Bandpass Filter

The working process of our method is shown in Figure 1 (image cited in Filtration Techniques for Surface Texture). There is a certain degree of certain overlap in the whole area. Therefore, this project proposes a Gaussian fuzzy fast-rising filter to realise the automatic segmentation of the stroke points in the original mural, and achieve a good contrast between the stroke and the background. The Gaussian low-pass filter is given by formula (1).

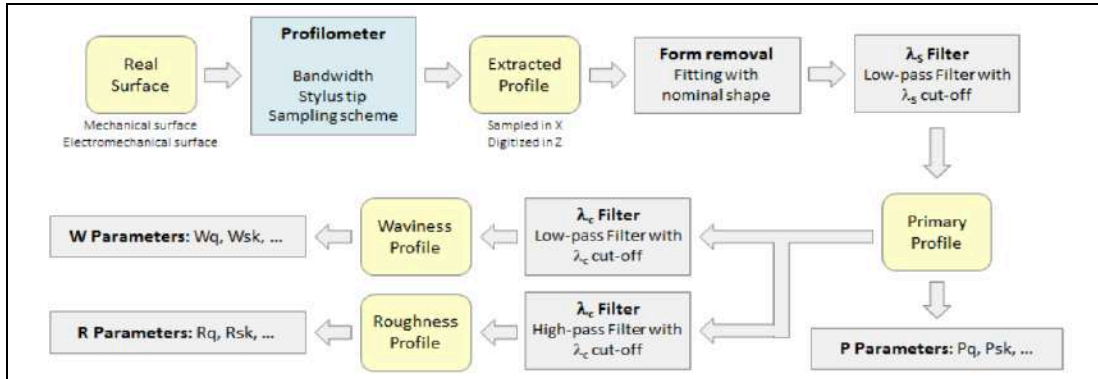


Figure 1. Flow of gaussian filter algorithm
 (Source: Author's collection)

$$R(\alpha, \beta) = e^{-dist^2(\alpha, \beta)/2\varepsilon^2} \quad (1)$$

$dist(\alpha, \beta)$ is the Fourier transform. ε is the distribution curve. When Fourier transform is applied to an image, the low frequency component can reflect some fine features in the image, such as boundary and noise. The grey distribution of stroke points and background points is well preserved, and the boundary of strokes is also preserved. The high-frequency lifting filter used here is represented by formula (2).

$$W_2(u, v) = \min(255, W_0(u, v) + \Delta W_0(u, v)) \quad (2)$$

W_2 is the output result. W_0 is the grey level of the original mural image. W_1 is the result of W_0 Gaussian ambiguity. The radius of the Gaussian kernel is denoted as r_g .

$$\Delta W_0(u, v) = \begin{cases} 255 & W_1(u, v) = 0 \\ \frac{255 - W_1(u, v)}{W_1(u, v)} W_0(u, v) & W_1(u, v) \neq 0 \end{cases}$$

B. Threshold Segmentation Method for Extracting Line Trace

After high-frequency lifting filtering, the overall grayscale of background pixels is larger than that of stroke pixels, and pixels with higher grayscale values are more likely to appear in the background. Therefore, this paper uses Otsu method to perform threshold segmentation on filtering result W_2 and remove pixels with high grayscale levels (Fan, 2021). The threshold segmentation results are denoted as W_3 is shown in Figure 2.

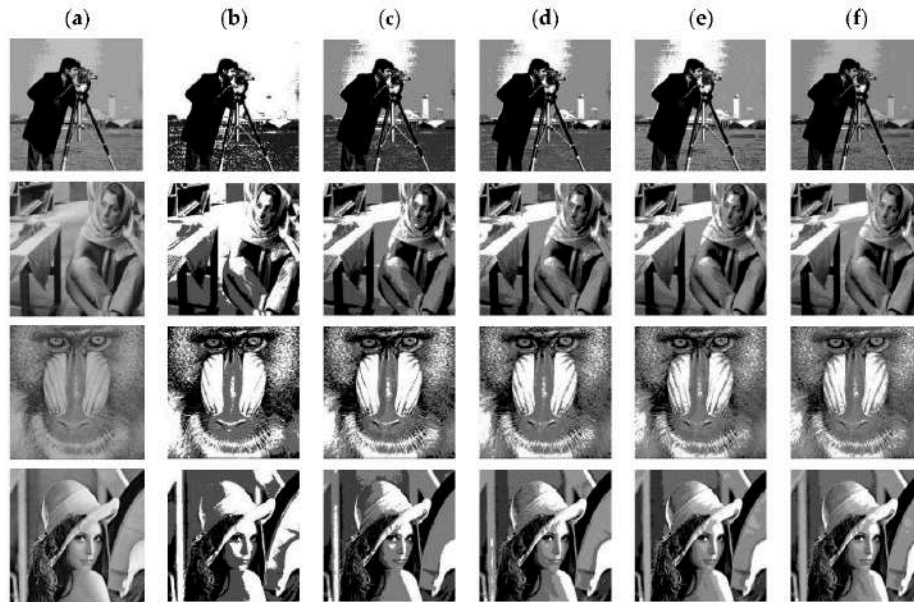


Figure 2. Threshold segmentation line trace
(Source: Author's collection)

C. Optimization of Line Strokes with Boundary Extraction Method

Based on the grey histogram of point A in the original image, the points in the image are discriminated, which leads to the discontinuity of stroke points. Stroke continuity algorithm based on Canny operator is proposed (Xu et al., 2023). In order to improve the consistency of the trip, this article follows the following steps:(1) Canny is the original grey-scale picture. The small threshold is denoted, the large threshold is denoted, and the result is denoted. (2) Use formula (3) to extract the outline of the pen path, and the result is denoted as. (3) is a pixel in the neighbourhood of 8. If the grey value of the pixel in is less than 255, and there is an edge pixel in the neighbourhood of 8, then the pixel is more likely to be located in the pen trace can control noise and affect pen integrity. When results are shown in Figure 3.

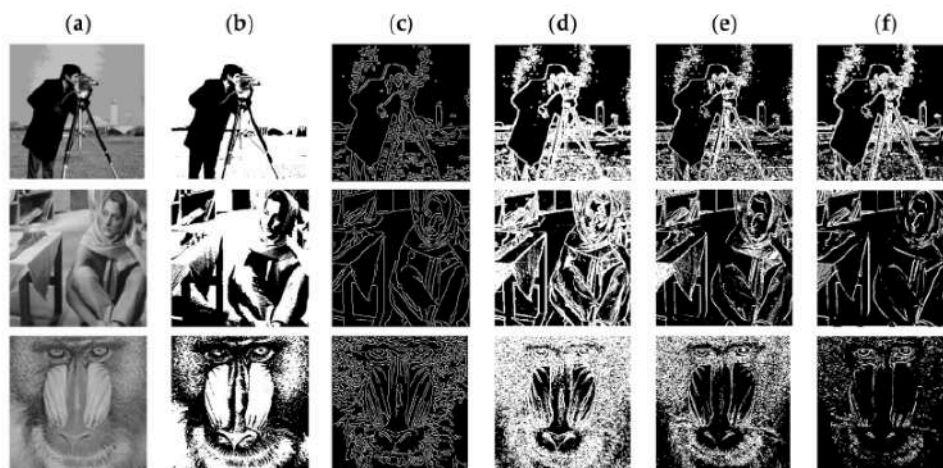


Figure 3. Results of optimising line strokes based on edge detection method

(Source: Author's collection)

D. Generation of Complete Line Trace

In the result W_3' generated based on edge detection, the pen path continuity is good, and the pixels whose grey value is close to the pen path in the background are eliminated, while the pixels in the pen path that are far away from the pen edge are also eliminated (Liang et al., 2023). In this paper, W_3 and W_3' are superimposed by formula (4) to generate a complete line tracing W_4 .

$$W_4(u, v) = W_3(u, v) \& W_3'(u, v)$$

RESEARCH METHODOLOGY

This research study uses the Design Research Methodology (DRM) framework which is a systematic methodology that it preferably practises in a product design and it place under the engineering design research platform (Blessing & Chakrabarti, 2009); due to featuring the synthesis of qualitative and quantitative data.

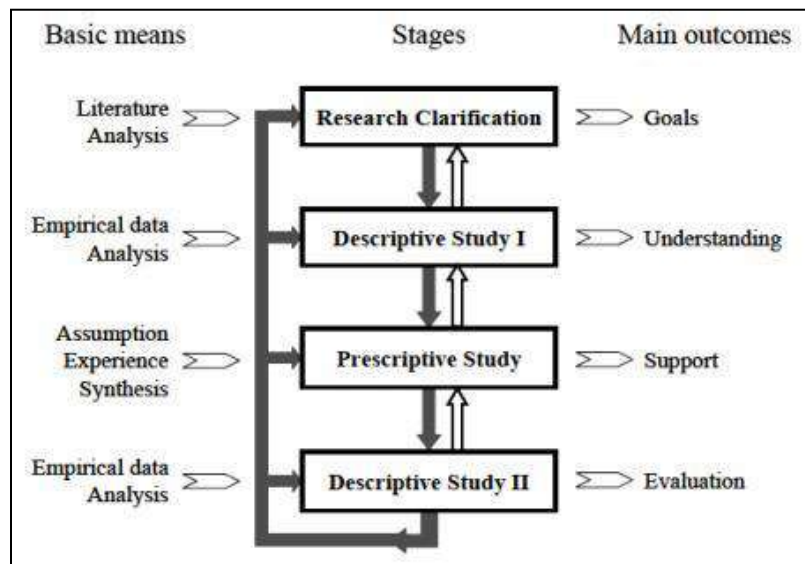


Figure 4. Design Research Methodology (DRM) framework flow
 (Source: Blessing and Chakrabarti, 2009).

In Figure 4, the bold grey arrows represented the major sequence processes into each stage individually. It began from the research clarification (RC) – descriptive study I (DS-1) – prescriptive study (PS) – descriptive study II (DS-2) until the direction of sequence processes cycling, returning together into the four stages respectively. For the iteration review, the white arrows had vertically moved

from the bottom to upper , representing the quality of key factor evaluation increasingly revealed by the DS-2 stage. Then, it is transitively being stepped up to reach the support as evidence of PS stage to convince the understanding of DS1 stage. Lastly, the researcher will be reached or referred the goals research setting in RC stage as known as the problem statements, RO, RA and RQ's supposed to be fulfilled in the DRM ways systematically. (2) The first phase, which is the literature review, is a critical component of any research project.

During this phase, the researcher conducts a thorough review of existing literature in the field of study to identify relevant research gaps and determine research objectives. This involves an exhaustive search for relevant research articles, books, and other sources of information related to the research topic. By reviewing existing literature, the researcher can gain a comprehensive understanding of the research area, identify the key challenges or issues, and formulate problem statements that guide the research process.

The second phase involves the construction of interviews and questionnaires that will be used to gather data from subjects. The researcher needs to design appropriate interview questions and survey items that will allow them to collect the necessary data to answer their research questions. The design of these instruments requires careful consideration of the research objectives and problem statements formulated in the first phase. The instruments should be constructed in a way that allows for the collection of both quantitative and qualitative data to provide a comprehensive picture of the research topic.

RESULTS AND DISCUSSION

Interactive Platform for Cad Drawing Experiments

Components of the System

Aiming at the design objectives and problems to be solved of the interactive platform for CAD drawing experiments, the design system platform composition (Figure 5 is quoted in EEG-based analysis for pilots' at-risk cognitive competency identification using RF-CNN algorithm). The system consists of 4 modules: student client, file server, Zoo Keeper collaboration component, and teacher client.

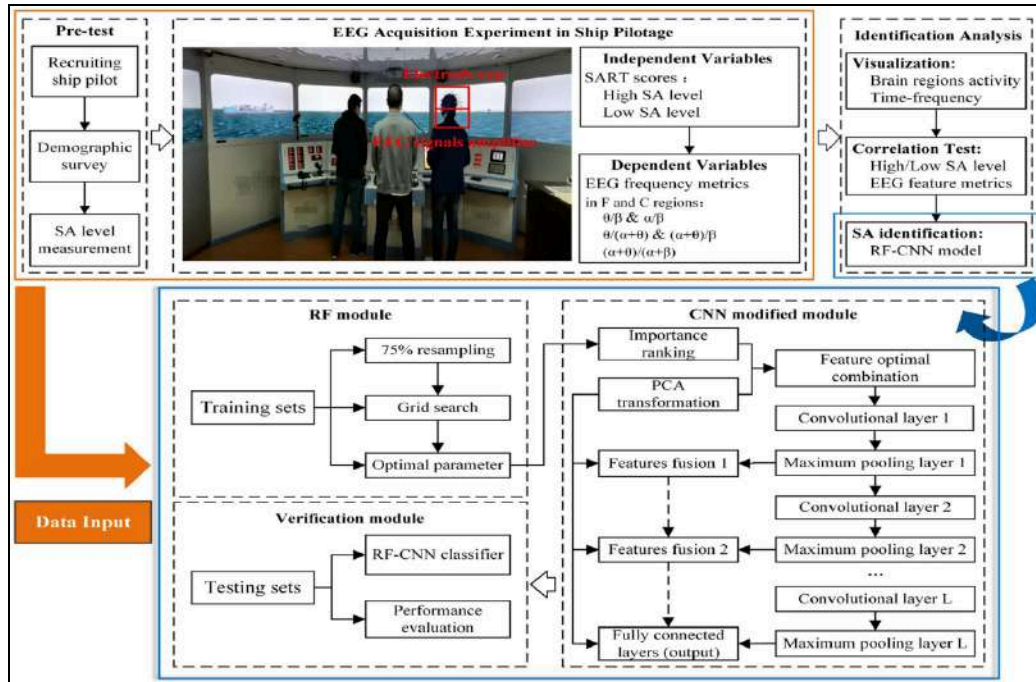


Figure 5. Composition of the CAD drawing experiment activity platform system
 (Source: Author's collection)

Student Client

"Student User" means all system components installed on the student computer. The system can be used on the special microcomputer provided by the CAD laboratory or the microcomputer configured by oneself. The module consists of two main modules (Figure 6 cited in Providing Expert Advice in the Domain of Collaborative Scientific Inquiry): CAD system software for trainees to carry out operational training. The system is a comprehensive interactive platform for drawing teaching, which puts forward its own requirements for the selection of CAD software. It can either be built in or extended to realise the automatic storage of documents and the merging of document items. If the existing software device meets this requirement, there is no need to install special CAD software. A file monitoring sync element has been installed on the computer. The monitoring synchronisation element is a self-operating, separate software process that is installed on a student's computer. This widget automatically executes when the system is turned on and is timed with the Zoo Keeper collaboration widget to get system Settings, teacher tasks, backup tables of student drawing files, and more. At the same time, it can also monitor the automatic storage directory of student homework files in advance, periodically scan the files in this directory, if the file has been updated or the file size has changed, then it will back up the file as a suffix, and then upload it to the file server. During this process, you can set the file update threshold and determine whether it is necessary to back up files to the file server based on the file update interval and file size changes. This method can not only maximise the preservation of the student drawing process, but also reduce the synchronisation frequency of the data.

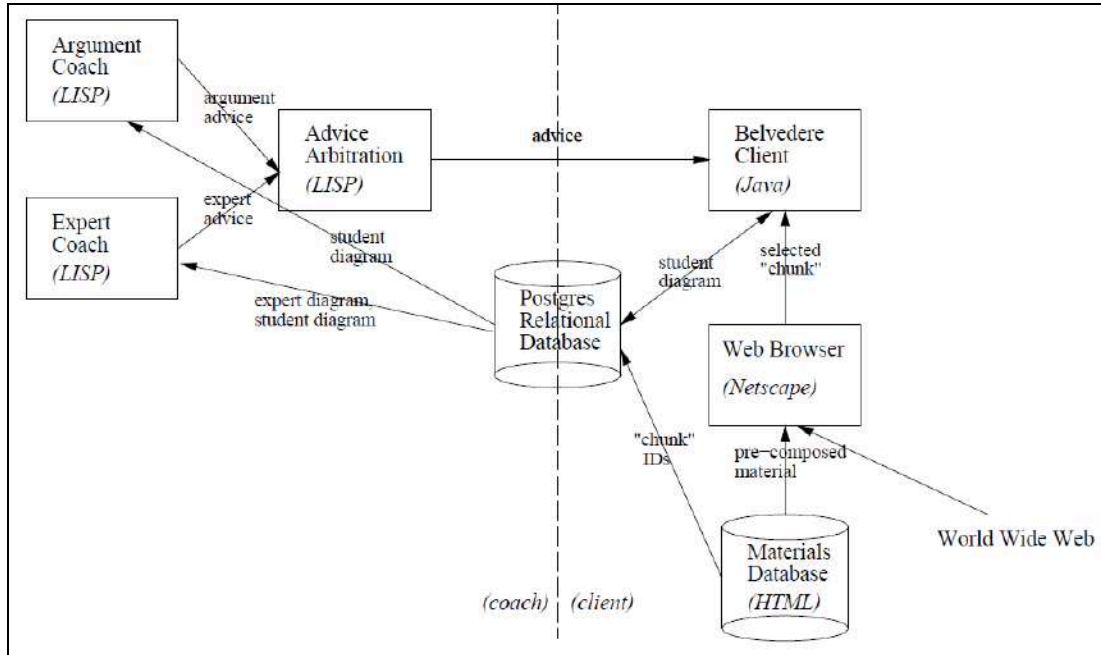


Figure 6. Student user component
 (Source: Author's collection)

File Server

File server is used to store student drawing files, teacher information and other shared files. The teacher will send the file storage directory to each student according to the experimental status of the student, and each student's file will be uploaded to a specific file bag at the same time, so that the teacher can check the progress and other students in the group can check. When the students jointly draw a more complicated chart, the student's client will download the chart of other students, and then make it on the computer, so that students can understand the progress of the whole chart.

Apache Zoo Keeper

Apache Zoo Keeper is an open source, extensible, efficient, extensible, and runs on top of Apache. It supports consensus mechanisms, group management mechanisms, and leader election mechanisms, and can be used to configure service components, synchronise service components, or specify registration components. Name Service is a service that associates names with associated connection information. Just as a phone book maps a name to a cell phone number, a DNS maps a domain name to an IP address. By using names, you can track the associated members of one or more clusters. Zoo Keeper supports distributed mutual exclusion in an easy way to ensure that data is consistent between shared resources and that it is properly updated. In a distributed network, effective configuration management is an important guarantee to ensure its normal operation and expansion. Through centralised storage and management of Zoo Keeper, the openness of the system is ensured. After a new compute node is connected to the system, it can quickly obtain the corresponding configuration information from Zoo Keeper, so as to realise a change in the entire distribution system. Zoo Keeper uses a leader selection mechanism to ensure that an outage in one cluster does not disrupt business throughout the cluster.

Faculty Client

In addition to similar features to the student client, the system also provides task management components (Zoo inspectors). All data modes in Zoo Keeper are a tree, just like the file directory in Unix. Task Manager is the data maintenance interface for Zoo Keeper, and it can check the current data and make changes to it by linking to the corresponding Zoo Keeper. In Zoo Keeper, teachers use task management components to store backup files for each student, determine learning materials and shared files, and work in groups according to the student's academic level.

Line Drawing CAD Platform Implementation

Line drawing CAD macros allow users to customise specific features and load them into the system. The self-defined automatic document storage and document fusion. Under normal circumstances, the teacher can check and modify the drawing of students, but due to time constraints, the teacher cannot draw for each student. The automatic storage of the file is to record the entire process of painting. The teacher can browse the file of painting at will, know the progress of painting by comparison, and find out their own problems. If necessary, you can open more image files to see the details in more detail. Splicing several smaller pages into one, so that students at a glance. Line drawing CAD also provides a document that can be combined with other engineering documents and projects that are now open. The platform also develops and implements a synchronisation component of document monitoring, and makes a preliminary specification for it. In this system, each user can obtain relevant configuration information through Zoo Keeper, and can update the node tree structure. The system consists of three main modules: configuration and practice files, group data and student data. Using the interface of "Task management module", the teaching objective is adjusted. Each student's profile contains the address of the file on the server, the group to which it belongs, and the trial requirements. In order to facilitate the teacher to teach, in the experiment, each student can carry out a variety of homework or group homework. Users can browse to the left to enter the relevant documents, after comparison, you can quickly find the problems and correct, and line drawing CAD itself all operations are carried out in the way of instructions, that is, each action on the interface will have a corresponding instruction. For example, click on the menu, add nodes, change the display scale, move rows, and so on. These instructions are displayed on the console and can be used repeatedly. The students in the same group can easily share the instructions when interacting, so that the students who participate in the discussion can clearly see the relevant procedures and order, and summarise and grasp the key points through watching and discussing the work process of other students.

CONCLUSIONS

Using the techniques of image boundary extraction and threshold division, the algorithm of line drawing for mural painting is studied. Whether it is a figure painter or a landscape painter, their works are full of pain and ups and downs. They are all kind-hearted and feel that they are driven by emotions. The lines are painted, or they are deep and simple, or light and soothing. Therefore, the lines that cause beauty in Chinese painting are not only an abstract summary of objective objects, but also a tangible carrier that expresses subjective emotions in the art of painting. It not only clearly expresses the painter's full emotions, but also produces poetic and artistic rhythm and rhythm. All in all, whether it is figure paintings, landscapes, flowers and birds painting, the lines of shaping the image have played its unique role. Although through thousands of years, the master of painting has continuously created and enriched the performance skills of lines in practice, making the shape of the lines more fully and perfect. The stroke point in the image to a certain extent, and keep the original style of the mural. Using the interactive platform of CAD drawing experiments help each other, help students make appropriate learning plans,

check the progress of students, and provide targeted guidance, which can be easily integrated into students, so as to establish a good relationship between teachers and students.

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The Influence of TikTok Marketing on Consumer Purchase Intention among Students

Nurazree Mahmud*

*Universiti Teknologi MARA, Cawangan Melaka
Alor Gajah, Melaka
Malaysia
Corresponding author
Email: nurazreemahmud@gmail.com*

Ahmad Mirza Nabil Yaakob*

*Universiti Teknologi MARA, Cawangan Melaka
Alor Gajah, Melaka
Malaysia
Email: 2022923901@student.uitm.edu.my*

Nurul Ain Abd Majid*

*Universiti Teknologi MARA, Cawangan Melaka
Alor Gajah, Melaka
Malaysia
Email: 2022792257@student.uitm.edu.my*

Nur Afrina Nurulzlan*

*Universiti Teknologi MARA, Cawangan Melaka
Alor Gajah, Melaka
Malaysia
Email: 2022987457@student.uitm.edu.my*

Nur Husnina Khairil*

*Universiti Teknologi MARA, Cawangan Melaka
Alor Gajah, Melaka
Malaysia
Email: 2022793725@student.uitm.edu.my*

Raja Nur Nabilah Balqis Raja Azhar*

*Universiti Teknologi MARA, Cawangan Melaka
Alor Gajah, Melaka
Malaysia
Email: 2022764645@student.uitm.edu.my*

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** These authors contributed equally to this study*

ABSTRACT

TikTok marketing has an enormous and broad effect on the purchasing intentions of students. TikTok has become an extremely effective medium for marketers to connect with consumers due to its interesting and simple-to-read content structure. TikTok's algorithmic content distribution system is designed to draw in

users and market a range of goods and services. This study looks into how TikTok marketing affects students' intentions to buy at selected Malaysian higher education institutions. The growing popularity of TikTok as a social media platform, especially among young people, emphasises the need to comprehend its influence on consumer behaviour. In this study, a quantitative methodology was applied, and analytical approaches employed, including reliability analysis and multiple regression analysis. The study concentrated on three important variables that affect consumers' intentions to buy: brand awareness, product quality, and price. A total of 115 respondents from the chosen universities took part in responding to the sent questionnaire. The research aims to offer insights into how businesses may effectively exploit the platform to engage with students as consumers by looking at these aspects in the context of TikTok marketing. The findings show that TikTok marketing has a major impact on student purchase behaviour, with product quality and price having a major influence on intentions to buy. All things considered, this study deepens our knowledge of how TikTok affects consumer behaviour, especially among students. It demonstrates the platform's potential as an ideal instrument for engaging students as customers and provides important insights for businesses trying to maximise their TikTok marketing efforts. Future studies on the evolving landscape of social media marketing and its effects on customer behaviour under various conditions can build on this research.

Keywords: *TikTok marketing, Purchase intention, Consumer behaviour*

INTRODUCTION

The public's concern with the decisions made by consumers, as seen on social media platforms like TikTok, is drawing more and more attention. The reason behind this trend is TikTok's enormous popularity as a social media platform. TikTok is a social media platform that offers a variety of creative sharing avenues, including video challenges, lip syncing, music, dance, singing, and more. These features are what make the platform appealing (Siregar et al., 2023; Dewa & Safitri, 2021). The quick development of information and communication technology, which has greatly advanced and almost completely taken over many facets of human life, is what led to the rise of TikTok as a social media platform. The widespread use of the internet is one noticeable outcome of this technological advancement.

TikTok has grown into one of the most widely used social media platforms among students, which makes it a desirable channel among businesses aiming to reach this demographic of consumers. Nevertheless, not enough research has been done on the influence and efficacy of TikTok marketing on the purchasing patterns of students. Thus, the purpose of this study is to address this knowledge gap and offer a thorough grasp of the ways in which companies can interact and connect with students on TikTok. This study will shed light on the various ways that businesses can use TikTok to draw in and keep students as customers by examining the impact of the platform's marketing on student purchasing behaviour. With this insight, companies can create more specialised and successful marketing plans that are targeted at the student community.

Additionally, this study will reveal the possible results and implications of TikTok marketing for students in higher education. It will explore how much TikTok marketing affects students' purchase intentions, brand awareness, and product quality and price. By examining these topics, the study can offer insights into how companies can use TikTok as a marketing tool to increase consumer engagement among students and, eventually, generate sales.

Last but not least, this research attempts to provide a thorough understanding of how businesses can effectively reach and engage with the student consumer population on TikTok and identify the potential

outcomes and consequences of such marketing strategies by examining the influence of TikTok marketing on student consumer behaviour. Finally, by focusing on the student demographic on TikTok, this research will help advance the field of marketing knowledge and offer useful insights for companies in this sector.

LITERATURE REVIEW

Purchase Intention

According to Lin and Nuangjamnong (2022), purchase intention is defined as a consumer's willingness to pay as well as their attitude towards a particular purchasing behaviour. The results of this study indicate a relationship between the credibility of influencers and certain aspects of consumer trust. When it comes to customer engagement and purchase intention during TikTok live streaming shopping, these are important factors. Additionally, a highly significant positive correlation between purchase intention and customer engagement was found by the study. This study identifies a number of sub-factors associated with trust in products, community members, and the media, with the highest mean value being associated with trust in products. Furthermore, Wijaya (2023) verified this finding by highlighting the substantial impact of brand image and trust on consumers' purchase decisions in the TikTok Shop context. The text highlights the favourable influence of trust on consumer behaviour, such as a simplified purchasing process, decreased stress, increased likelihood of repeat purchases, lower rates of returns, emotional connection, and enduring loyalty. Meanwhile, an article by author Nilsson et al. (2023) has stated the impact of trustworthiness, perceived expertise, and parasocial relationships on Swedish consumers' purchase intentions on TikTok, and the study found a positive relationship between purchase intention and the factors mentioned. The image of beauty products and social media advertising on TikTok are the main determinants of consumer purchasing decisions (Darmatama & Erdiansyah, 2021). These factors have a substantial impact on consumers' purchasing decisions. Social media advertising on TikTok stimulates viewers and shapes their behaviour, influencing them to make purchases. According to Khaleeli's (2020) study, there is a beneficial and significant link between sales promotion on social media and the intention to make online purchases. However, there is no significant relationship between social media advertising and the intention to make online purchases. This indicates that consumers' intentions to make online purchases are not directly impacted by social media advertising. The article by Araujo et al. (2022) explores the impact of emotional, entertaining, and informative aspects of TikTok video advertising on customer behaviour and purchase intention. The informative dimension aims to captivate the audience and alleviate stress, while the emotional dimension aims to elicit either positive or negative emotions in the audience. On the other hand, the informative dimension provides useful and practical information that can assist customers in their daily lives. The study also found that online video advertising, including TikTok video commercials, has a positive impact on consumer purchase intention. Furthermore, the likelihood of the user developing a favourable attitude towards an online platform is positively correlated with their level of engagement. This behaviour has the potential to result in continued favourable intentions to make purchases, active involvement of users, the formation of a brand's perception, and loyalty towards the brand.

Brand Awareness

Brand awareness plays a pivotal role in shaping consumers' purchase intentions, serving as a critical precursor to buying decisions. According to a study conducted by Alhamdina and Hartono (2023), social media marketing is an effective method for connecting with individuals and enhancing their familiarity with a brand. To establish consumer trust in a brand, it is crucial for consumers to grasp that the brand incorporates more than just a name or symbol on a product. Brand recognition plays a crucial role in

increasing consumers' intention to make online purchases, as they are more likely to buy products that they are already familiar with and that have a strong reputation. The study revealed a direct correlation between brand awareness and consumer brand trust, as well as online purchase intentions for products available on TikTok shops. Consumers are more inclined to have confidence in and buy products when they possess knowledge about the brand. Likewise, the reputation of a brand has a favourable impact on the trust that consumers have in the brand's products on TikTok Shop. In addition, Nurjannah and Suriyanto (2022) have asserted that different forms of brand awareness, including brand recognition, brand recall, and top of mind, play a crucial role in influencing a consumer's decision-making process. The study indicates that TikTok social media, brand ambassadors, and brand awareness significantly impact consumers' purchase intentions. The study revealed that brand awareness had the most significant positive influence on the intention to purchase. The study additionally revealed that female participants exhibited greater dominance in their use of TikTok and Shopee. In addition, social media, including TikTok, is a critical communication channel for determining customers' brand awareness (Gesmundo et. al., 2022). Researchers stated that TikTok is an effective platform for marketing campaigns and has a positive impact on brand awareness and recall. Shabbir et al. (2017) state that brand awareness comes before the establishment of brand equity. They also emphasise the significant role of awareness in consumers' decision-making processes. Furthermore, the authors suggest that the higher the level of brand awareness, the greater the likelihood that the product or brand will be considered by consumers when making their final choice among different brands. (as cited in Gesmundo et. al., 2022).

H1: There is a relationship between brand awareness and purchase intention.

Product Quality

According to Meliawati et al. (2023), a study was conducted to analyse the relationship between purchase intention and product quality. Product quality refers to the specific features and qualities of a product that determine its capacity to satisfy the requirements and desires of customers. The factors encompassed in this category include performance, design, packaging, and specifications. Based on the article, the findings show that the quality variable of the product had the highest value, which was 13.34. This suggests a direct correlation between the intention to purchase and the quality of the product, indicating that customers place a high value on the attributes and qualities of the product in relation to meeting their needs and expectations. In the meantime, "word of mouth" refers to the process by which customers or users communicate and exchange information about a product or service. Individuals employ this casual method of communication to exert influence over one another's purchasing choices by exchanging their opinions, recommendations, and personal encounters. Word-of-mouth marketing can come from a wide range of sources, such as social media platforms like TikTok, where users can recommend and share content with their followers. Word of mouth has the potential to act as an intervening variable. Hence, as per a study published in the IDEAS Journal of Management and Technology, the quality of a product has a positive effect on electronic word-of-mouth, which in turn has a positive influence on purchase decisions (Harisandi & Purwanto, 2022). Additionally, the favourable quality of a product has a significant impact on the purchasing decisions made through electronic word-of-mouth within the TikTok application. Consequently, the study suggests that the quality of a product has a substantial impact on customer decisions to purchase TikTok applications.

H2: There is relationship between product quality and purchase intention.

Price

Consumers heavily depend on price when making a purchase. Individuals often engage in price comparisons for comparable goods, ultimately opting for a more affordable alternative based on their perception of quality relative to price and other economic considerations. As a result, sellers engage in competition by consistently reducing their prices and offering discounts to attract customers during the sales process. Customers establish a minimum and maximum price range, with prices below the minimum indicating products of low quality and prices above the maximum being seen as expensive and not justified based on the value provided. Essentially, as stated by Rochman and Kusumawati (2023), an investigation was conducted to examine the impact of promotions, influencers, convenience, service quality, and prices on purchasing decisions made on the TikTok application's "TikTok Shop." The study confirms that prices have a significant impact on purchasing decisions, as consumers primarily consider the affordability of the price and the perceived quality of the products in relation to the cost when making buying choices. Price is also a measure of the size of the value of satisfaction with a product (Harisandi & Purwanto, 2022). The study highlights the impact of a meticulously designed pricing strategy on consumers' perceptions and decision-making processes in relation to purchasing. The study's literature review emphasises that consumers are willing to allocate a higher budget for a product that has a higher price tag, provided they anticipate a proportionate level of satisfaction. Essentially, the price of a product serves as an indicator of the level of perceived value and satisfaction it provides. Furthermore, prices can be influenced by additional factors, such as the inclusion of free shipping and the availability of discounts. Consequently, consumers frequently evaluate and scrutinise the advantages offered by sellers in order to obtain lower prices. Based on the study conducted by Tursina and Adlina (2024), it can be inferred that discounts exert a favourable and substantial impact on purchasing interest (Y). This is because discounts have the ability to capture the attention of consumers, motivating them to make purchases of desired items. Finally, there is an awareness of prices. Price awareness pertains to a consumer's awareness and comprehension of the prices linked to products or services in the market. It pertains to an individual's capacity to identify, recollect, and assess the expenses associated with items they may wish to buy. The study findings suggest that being aware of prices positively affects the intention to make purchases in TikTok live streaming shopping (Ahmadi & Hudrasyah, 2022).

H3: There is a relationship between product price and purchase intention.

RESEARCH METHODOLOGY

The target population is undergraduate students located at public universities in Malaysia. Based on purposive sampling, 115 respondents were obtained. These respondents were obtained based on their experience and usage of TikTok, at least for the last 6 months, as a common character needed for the purposive sample in this study. These respondents also represent all-level business and management students at their universities. The current study comprises four main variables: brand awareness, product quality, price, and purchase intention. The items were adopted from the previous studies, especially those closely related to organisational contexts, and all the variables were measured using the five-point Likert scale.

In this research, the researchers have designed a structured questionnaire as the primary means of data collection. The questionnaire is organised into five sections labelled A, B, C, D, and E, each addressing specific aspects. Section A focuses on collecting demographic information, Section B on brand awareness, Section C on product quality, Section D on product pricing, and Section E on investigating purchase intentions among consumers (students). The questionnaire incorporates both multiple-choice and

Likert-scale questions. A five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), is utilised to assess the respondents' agreement levels with each statement. Respondents are required to select only one response for each question. The questionnaire is presented in the English language. The data were examined via SPSS, employing analytical approaches including reliability analysis and multiple regression analysis in order to test the relationship between each variable.

FINDINGS

Cronbach's alpha was carried out, and as shown in Table 1, the alpha value (α) for all items was above 0.6. Therefore, it can be concluded that the items applied in this study were valid and reliable. Due to the α value being close to 1, it can be considered that the variables used have a high level of reliability. Next, Table 2 shows the breakdown of the respondents by gender, age group, semester, and time spent on Tiktok by the students. The majority of respondents were male, and mostly they were between 21 and 23 years old, with 86.1%. As for the time spent on Tiktok, most of the students spent around 1-2 hours with 57.4%, followed by 2-3 hours with 27.8%.

Table 1. Reliability Analysis

| Variable | Number of Items | Cronbach's Alpha |
|--------------------|-----------------|------------------|
| Brand awareness | 5 | 0.798 |
| Product quality | 5 | 0.740 |
| Price | 5 | 0.814 |
| Purchase intention | 5 | 0.809 |

Table 2. Respondents Profile

| Criteria | Category | Number | Percentage |
|----------------------|----------------------|--------|------------|
| Gender | Male | 58 | 50.4 |
| | Female | 57 | 49.6 |
| Age Group | 18-20 | 8 | 7 |
| | 21-23 | 99 | 86.1 |
| | 24 & above | 8 | 7 |
| Semester | Semester 1 | 3 | 2.6 |
| | Semester 2 | 9 | 7.8 |
| | Semester 3 | 10 | 8.7 |
| | Semester 4 | 7 | 6.1 |
| | Final Semester | 86 | 74.8 |
| Time spent on Tiktok | Less than 15 minutes | 3 | 2.6 |
| | Less than 30 minutes | 10 | 8.7 |
| | 1-2 hours | 66 | 57.4 |
| | 2-3 hours | 32 | 27.8 |
| | More than 3 hours | 4 | 3.5 |

Table 3. Result of Multiple Regression

| Dependent variable: Purchase intention among students | | |
|---|---------------------------------|-------|
| Independent variables | Standardised Coefficient (BETA) | Sig. |
| (Constant) | | |
| Brand awareness | -0.058 | 0.433 |
| Product quality | 0.176 | 0.012 |
| Price | 0.759 | 0.001 |
| F value | 87.455 | |
| R square | 0.703 | |

CONCLUSION AND DISCUSSION

Based on Table 3 above, the only variable with an insignificant relationship is brand awareness, whose significant value is 0.433 as it is greater than 0.05. This finding is consistent with Yaseen and Mazahir (2019), whose findings found that brand awareness is among the insignificant determinants that influence students' purchase intentions via Tiktok marketing. There are several factors that might lead to this finding. For instance, it might be due to competitive factors. Despite brand awareness, consumers may opt for competitors' products if they perceive them to have superior quality, better value for money, or more in accordance with their preferences. Furthermore, the suitability of the product is an additional factor that could potentially contribute to the lack of significance in this relationship. Occasionally, consumers may possess familiarity with a brand but may not perceive its products as compatible with their requirements or preferences. In such instances, mere consciousness does not result in the intention to make a purchase. The reason for this is the wide range of content available on TikTok. TikTok is distinguished by its heterogeneous and swiftly evolving content. During their browsing sessions, users are exposed to a varied selection of videos that cover a wide range of topics, trends, and interests. In this dynamic setting, users may not consistently focus on brand messaging or form robust brand associations, thereby reducing the direct impact of brands on their intention to make a purchase.

Moreover, the result specifies the positive relationship between product quality and price on students' purchase intention, with significant values of 0.012 and 0.001, respectively. In addition, comparing the two predictors that were significant, price is the main dominating factor that influences the students' purchase intention, as this predictor has a higher beta value (0.759) compared to other predictors. This is due to the main concern of students' limitations on their spending patterns, in which saving on expenses is a vital choice. TikTok boasts a substantial user base primarily comprised of younger demographics, specifically Generation Z and Millennials. These demographic cohorts frequently possess restricted discretionary funds and exhibit greater sensitivity to prices when compared to older generations. Consequently, they are more inclined to give priority to affordability when making purchasing decisions. However, the TikTok platform accommodates a diverse array of brands and products, resulting in a fiercely competitive market setting. Given the wide range of choices available to consumers, the price of a product or service becomes a vital element for brands attempting to attract and retain customers. Products with lower prices or promotional offers are more likely to attract the attention of TikTok users who are sensitive to prices.

In addition to price, the quality of a product also has a substantial impact on the purchase intention of students who use TikTok. TikTok users prioritise authenticity and reliability when it comes to the content they engage with. When a product is featured in a TikTok video and is perceived as being of superior quality, users are more inclined to trust the endorsement and contemplate buying the product.

Positive comments and testimonials regarding the product's performance from both influential individuals and fellow consumers can further strengthen trust and credibility. This is one aspect to consider; the other is the potential impact on user engagement and reviews of this link. Users can interact with content on TikTok by liking, commenting, and sharing it. Comments on TikTok videos often include users' thoughts and experiences with the featured products. Users' propensity to buy a product is strongly correlated to the number of positive comments posted about it in the comments section. Finally, product quality extends beyond first impressions and includes factors such as durability and longevity. Users highly appreciate products that demonstrate durability and maintain their quality even with frequent use over an extended period of time. TikTok users may prioritise buying products renowned for their durability, as they perceive them to provide superior long-term value for their money.

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Exploring the Power of Visual Aesthetics in Advertising

Wan Kalthom Yahya*

*Faculty Business & Management, Universiti Teknologi MARA (UiTM),
Cawangan Melaka, Alor Gajah, Melaka,
Malaysia
Corresponding Author
Email: wkalthom@uitm.edu.my*

Geetha Muthusamy*

*Faculty Business & Management, Universiti Teknologi MARA (UiTM),
Cawangan Melaka, Kampus Bandaraya Melaka,
Melaka, Malaysia
Email: geethamuthusamu@uitm.edu.my*

Roszi Naszariah Nasni Naseri*

*Faculty Business & Management, Universiti Teknologi MARA (UiTM),
Cawangan Melaka, Alor Gajah, Melaka,
Malaysia
Email: roszinaseri@uitm.edu.my*

Faiza Rostam Affendi*

*Academy of Language Studies,
Universiti Teknologi MARA (UiTM) Pahang Kampus,
Raub, Pahang
Malaysia
Email: faiza@uitm.edu.my*

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**These authors contributed equally to this study*

ABSTRACT

Marketing plays a crucial role in determining the success of any organisation. Businesses can achieve significant growth by implementing a strategy that prioritises the needs and preferences of their customers. A recent study has emphasised the crucial significance of visual attractiveness in attracting customer attention and involvement. A favourable aesthetic experience can enhance the user's involvement with the interface. This article seeks to examine the capacity of utilising visual aesthetics to mould brand identity, impact consumer perception, and affect behaviour in advertising campaigns. This study will use Gestalt theory principles to enable advertisers to create more impactful and captivating advertising that captures viewers' attention, facilitates information processing, and improves brand recall. The study will utilise a quantitative methodology, using data collected via a self-administered questionnaire. The data analysis will employ structural equation modelling (SEM). The study's findings will unquestionably equip advertising marketers to improve product promotion techniques and tailor advertising campaigns.

Keywords: *Advertising, Visual aesthetics, Advertisements, Communication*

INTRODUCTION

Creating an eye-catching advertisement is essential in the field of marketing, as it has the power to influence consumers' perceptions and capture their interest (Enschot-van Dijk & van Mulken, 2014; Köksal, 2022). Research has shown that carefully crafted advertisements that incorporate visually captivating elements can significantly improve brand recognition, cultivate favourable perceptions of the advertised product, and ultimately influence consumer actions (Bolt, 2014; Kaushik, 2021). Utilising reflections in advertising can significantly enhance the visual allure of a product (Sharma & Kumar, 2022).

Visual aesthetics in advertising encompasses the creative and sensory elements that elicit a favourable reaction from customers. Creating visually captivating and alluring commercials requires a strategic approach to design, imagery, and form, emphasising the importance of visual appeal in capturing consumers' attention, shaping their perception of a brand, and driving their purchasing choices. According to a recent study, customers are greatly influenced by visually engaging commercials that are customised to meet their needs (Yunita, 2022). Visual elements play a crucial role in advertising as they combine shape and content to convey powerful metaphors that enhance the message. Utilising visual aesthetics can greatly enhance the impact and effectiveness of advertising, leaving a lasting impression on customers and shaping their perception of brands. Visual design plays a crucial role in shaping customers' perceptions, memories, and behaviours when it comes to the impact of advertisement. According to Negrin and Tantawi (2015), visual communication has the ability to engage and make a memorable impact.

Asuzu and Olechowski (2023) found that the presence of visual aesthetic value in advertisements significantly influences consumer perception and purchasing decisions. The researchers also highlighted the importance of visual aesthetics in captivating commercials, emphasising their significant influence on customers' attitudes and intentions towards the advertised products. Consumers are more likely to purchase products with an appealing aesthetic, especially when presented in visually appealing ways on popular social media platforms like Instagram (Yunita, 2022). Similarly, Sharma and Kumar (2022) conducted a recent study which found that showcasing a product alongside its reflection can significantly enhance its visual appeal and positively influence consumers' perception of the product. Integrating visual imagery and design elements in advertising can significantly boost consumers' perception of product appeal. Moreover, studies have shown that incorporating visual intrigue and detailed product descriptions in advertising enhances consumers' perceived value of products, thereby increasing their willingness to pay for them. Understanding the importance of visual designs in advertising, it becomes crucial to align the visual properties with the needs of the target segment. This guarantees a positive influence on consumer perception (Kaushik, 2021).

When it comes to advertisements, the inclusion of visual aesthetic elements has a significant impact on consumer attention, perception, decision-making, and ultimately, purchasing behaviour. Clearly, in a world saturated with information, a visually appealing advertisement has the ability to stand out and grab the attention of potential customers. Eye-catching designs can substantially enhance an advertisement's visibility in a crowded setting, increasing the likelihood of it being noticed and remembered. Understanding the power of visual aesthetics in advertising can significantly enhance the effectiveness of marketing communications and foster stronger customer engagement. Tarta et al. (2020) found in a recent study that the aesthetic dimensions in advertisements significantly influence consumers' perception of stimuli and purchase decisions. This would provide valuable insights for marketers to develop effective marketing strategies.

THEORY UNDERPINNING

Gestalt Theory

Gestalt theory highlights that individuals see objects more as a whole than as separate parts. Gestalt theory aims to elucidate how humans organise perceptible items into identifiable patterns through the establishment of connections between them. Gestalt theory posits that individuals engage in information processing in order to comprehend their surroundings. According to the concept, the entirety is not larger than its individual parts, but it is also distinct from those parts (Wertheimer, 1938).

The concepts of Gestalt psychology, including proximity, resemblance, continuity, closure, and figure-ground, elucidate how individuals perceive visual elements as a cohesive entity. The principles of Gestalt theory have a significant influence on the visual aesthetics of advertising design. They improve perception and aesthetics in advertising, resulting in impactful and cohesive visual designs (Yaman & Yaman, 2022; Hamed, 2022). Additionally, they contribute to the creation of effective images and consumer preference (Liu & Lee, 2023), enhance design and consumer engagement (Chuang, 2019), and are utilised in advertising to create impactful and cohesive designs (Nikiforova et al., 2023). Furthermore, the application of colour similarity in advertising enhances unconscious scanning and brand attitudes. (Chiu et al., 2017). Moreover, the gestalt theory serves to integrate the perceptual process, exerting influence on the visual aesthetics employed in advertising (Gilchrist, 2022). It plays a role in shaping the visual aesthetics and assists in the formulation of advertising design concepts. It improves the effectiveness of visual communication tactics in advertising campaigns (Rosa & de Rangel Moreira, 2023). Undoubtedly, Gestalt theory principles are essential in advertising to generate visually compelling and coherent designs that effectively direct viewer perception and interpretation (Khamis et al., 2023). Thus, advertising can effectively apply Gestalt theory to create compelling and memorable ads.

VISUAL AESTHETICS

People often use the concept of "aesthetics" in everyday language to describe the portrayal of beauty. German philosopher Alexander Baumgarten first introduced the concept of aestheticism in the late 1700s. The intention was to emphasise the experiential aspect of art as a realm of understanding, where information is communicated through sensory methods rather than relying solely on strict reasoning or logic (Veryzer 1993). The concept of aesthetic appreciation, as proposed by Hirschman (1986), covers a variety of descriptors that capture the essence of beauty and attractiveness.

As per Kusumasondjaja's research in 2019, visual aesthetics encompass the ability of an image or object to convey a unique and visually pleasing picture or appearance. According to Kita and Miyata (2016), visual aesthetics involves the seamless blending of various design elements, such as colour, shape, form, texture, and more. Individuals make personal choices when it comes to aesthetics and harmonious colour combinations. Furthermore, Baker et al. (2018), stated that marketers use emotive visuals on Instagram to generate more responses and interactions compared to traditional visuals. According to a recent study by Alcaraz et al. (2022), Instagram users have shown a strong inclination towards creative content as the visually appealing graphics in their posts successfully capture the attention of potential buyers. Asemah et al. (2013) define aesthetics in a modern context as a specific style or design. Thus, in emphasising various facets of visual communication, visual aesthetics are closely connected ideas that deal with the use and interpretation of visual features. Visual aesthetics is the study of beauty and taste in visual encounters. It emphasises appreciating aesthetic aspects for their aesthetically appealing attributes, including harmony, balance, colour, form, and texture. Visual aesthetics primarily focuses on the sensory

and emotional reactions that sights elicit. In conclusion, visual aesthetics are visual communication that can produce captivating, convincing, and visually appealing graphics.

ADVERTISING

Advertising encompasses all paid communication efforts sponsored by a company to raise awareness of a particular product or service among a specific target audience. Mass media encompasses various channels such as radio, television, billboards, newspapers, and magazines (Lamb et al., 2021). Advertising plays a crucial role in promoting and selling products, services, or concepts. Successful communication is the ultimate goal of advertising. The definition of marketing aesthetic encompasses the visual elements of a company that can evoke aesthetic pleasure (Schmitt et al., 1995). Business cards, packaging, logos, trade names, buildings, advertisements, and other corporate elements are just a few examples of the various manifestations.

Veryzer proposed a comprehensive theory in 1993 that explores the philosophy of beauty and the fine arts. Dagalp and Sodergren (2023) provided a comprehensive definition of the artistic qualities and sensory reactions displayed in advertisements. Advertising aesthetic encompasses the elements of an advertisement that have the power to evoke aesthetic enjoyment and also encompass the various elements that enhance the visual appeal and allure of advertisements. Beauty is a key focus in the field of aesthetics as the attractiveness of an object is determined by its aesthetic pleasure (Dagalp & Sodergren, 2023). Clearly, captivating and creative advertisements have the power to catch the eye in a crowded market, attracting potential customers and shaping their opinions of the brands they represent. Consumers greatly benefit from advertisements that provide them with valuable information about the prices, varieties, ranges, and quality of products available on the market. This enables them to make well-informed purchasing decisions.

Efficiently overseeing the marketing communications function is essential for focusing on the needs of the customers. It is important to consider the influence that communications can have on customers. Marketers and their practitioners must possess the necessary expertise since having a deep understanding of how consumers navigate the media, gather information, make product and brand choices, and live their daily lives is essential for marketers. With the decreasing costs of neuroscience instruments and the rapid progress in the field, there is a great potential for online advertising to benefit from gaining a deeper understanding of consumer reactions. (Liu-Thompkins, 2019).

THE IMPACT OF VISUAL AESTHETICS IN ADVERTISING

Creating an advertising campaign that truly grabs the audience's attention and generates a significant response requires a strategic approach to visual elements. This includes carefully considering factors such as colour, imagery, layout, and design principles. Just like a marketing coordinator, advertisers utilise aesthetics and style elements to effectively convey messages that evoke an emotional response. Aesthetic communication plays a crucial role in advertising, as it has the ability to create a lasting impression on consumers' perception of a product. Creating a compelling visual representation is crucial to effectively communicate a message to the target audience. Also, great care is taken to craft the visual representation in order to effectively convey the intended message and using aesthetic language is important in shaping the overall structure of advertising. The combination of form and content work together seamlessly to convey symbolic meaning. Nevertheless, when attempting to convey metaphors in advertising, it is vital

to not only analyse the semantic aspects but also take into account the linguistic elegance of expression (Köksal, 2022). According to Kaushik (2021), it is crucial to utilise captivating visual communication to effectively attract and persuade customers. The researcher highlighted the significance of visual design and aesthetics in influencing consumers' perception of advertisements. In his research, Köksal (2022) highlighted the significance of incorporating aesthetic language in visual advertisements to captivate attention, convey significance, and shape consumer response.

Creating visually appealing advertisements is paramount in capturing consumers' attention and influencing their buying choices. Visual elements like symbols, drawings, photos, and colours are utilised in advertisements to craft captivating and appealing designs (Agustian et al., 2023). As per Kaushik's research (2021), the visual appeal and design of advertisements play a crucial role in capturing the attention of consumers and influencing their purchasing decisions. Graphics and visuals play a significant role in shaping consumers' perception of a company's offerings as it enhances memory, shapes their outlook, and impacts their psychological drive. In today's ever-evolving advertising landscape, it is easy to overlook the true impact of visual communication. Having a well-designed and visually appealing product is needed in capturing the attention and winning over customers (Kaushik, 2021). Visual design and aesthetic design have a significant impact on customer perception, memory value, attitude, and psychological intention. According to Zarzosa and Huhmann (2019), incorporating visually captivating graphics in advertising can significantly increase the likelihood of capturing attention and establishing brand or positive product associations in the mind of the audience.

Farace et al. (2019) found that strategically positioning products in advertisements is vital in capturing the interest of the target audience. Therefore, it is important to understand how customers perceive graphic patterns in advertisements. Furthermore, the visual presentation of products can shape customers' perception of the advertisement and its message by influencing their ability to envision using the product. Schnurr (2017) suggested in his study that consumers prioritise a product's visual appeal over its capabilities, provided it meets a certain level of functionality. In addition, Hong and Byun (2018) emphasised the importance of visual aesthetics in creating a positive impression and enhancing the overall value and meaning of a product. His research findings suggest that combining visual and semantic elements resulted in a more positive evaluation from customers. According to Farace et al., (2019), research suggested that advertisements with a consistent headline and visual design have a higher chance of receiving a positive judgement from customers. As Zhang and Moe (2016) advocated, crafting a digital advertisement that highlights congruity can boost the audience's perception of relatability and relevance tied to the post.

In addition, making strategic creative choices to enhance the visual impact, effectiveness, and memorability of advertising falls under the realm of visual aesthetics in advertising. Visual aesthetics can be utilised by advertisers to create captivating and impactful advertising that leaves a lasting impression on the audience and achieves the desired outcomes. Having a strong visual and aesthetic design is crucial in capturing attention and enhancing the message a company wants to communicate, and assisting marketers in crafting captivating and impactful advertisements. Indeed, the visual appeal of advertisements holds significant sway (Alcaraz et al., 2022). Visual communication plays a crucial role in today's advertising landscape, capturing and maintaining customer attention. Understanding aesthetics can be a valuable asset in advertising, as it allows marketers to gain insights on how to captivate consumers and enhance their overall experience. Essentially, when done right, aesthetic communication in advertising has the power to captivate the audience's attention.

CONSIDERING THE IMPACT OF VISUAL AESTHETICS ON ADVERTISING

Understanding the concept and value of beauty is essential as appearance is everything. Visual aesthetics play a crucial role in capturing the audience's attention. The way people feel and perceive their surroundings can be shaped by elements such as colour and lighting. A study was conducted by Semir Zeki which sought to prove this fact (Jun, 2018).

Negm and Tantawi (2015) found that users' perceptions are significantly influenced by advertising visuals. The design's characteristics must align with users' needs in order to be effective. Additionally, using visually appealing images can improve memory, attitudes, and behaviour. Research has indicated that the way an object looks has a significant impact on a person's emotional response. Complex aesthetics are also effective in capturing attention. Using images in advertising has the power to enhance users' memory, shape their attitudes, and influence their behavioural intentions. Visual communication in advertising is highly effective at capturing users' attention and holding their focus (Negm & Tantawi, 2015). Besides, visual representation relies on design, form, and content to communicate meaning, with aesthetics playing a vital role (Koksal, 2022). It is worth mentioning that there are various factors that have a significant impact on the visual appeal of advertising. These factors significantly influence the design and the perception of advertisements.

Identifying the Desired Customer Base

Research has indicated that the visual design elements in advertisements have a substantial influence on consumers' perceptions (Usman & Olatunde, 2015). Just like a marketing coordinator, visual communication in advertising has the power to grab attention and shape consumer behaviour. Advertisements have evolved to incorporate intricate design and aesthetics to captivate viewers and convince them to take action. Target audiences' preferences influence the visual aesthetics in online advertising. These preferences include a fondness for creativity, bright colours, discounts, and eye-catching locations (Negm & Tantawi, 2015). Extensive research highlights the substantial influence of visual aesthetics on consumer perceptions and behaviour in advertising campaigns. Kumar (2022) acknowledged the significant influence that design elements and imagery have on consumers' perception and engagement with advertised products or services. Ensuring effective communication involves aligning the visual properties of advertisements with the needs and preferences of the target audience (Kaushik, 2021). In addition, the incorporation of visual designs boosts the ability to remember, shapes perceptions of the promoted products, impacts consumer intentions resulting in heightened aesthetic reactions from consumers, underscoring the significance of originality and innovation in visual depictions (Kumar, 2022; Kaushik 2021; Enschoot-van Dijk, & van Mulken, 2014). Advertising's visual aesthetic value favourably affects consumer perception, which may encourage consumers to make more purchases (Tilak, 2020).

Understanding the target audience is crucial in creating visually appealing and effective advertising campaigns. Having a deep understanding of the demographics, psychographics, and preferences of the target audience is absolutely essential. Ensuring that the visual aesthetics resonate with the intended viewers is crucial. Visual aesthetics are crucial in capturing attention, persuading consumers, and enhancing the appeal and effectiveness of advertising campaigns. As well noted, aesthetic preferences are greatly influenced by cultural factors. Designers should always consider cultural sensitivities and strive to create designs that are respectful and inclusive, particularly when targeting specific customer groups. This involves understanding the cultural sensitivities, symbols, and norms in order to connect with the intended audience. Staying up-to-date with design trends and styles is pivotal to remain relevant and attractive to target consumers. Nevertheless, it is essential to strike a harmonious blend between contemporary appeal and enduring qualities to guarantee long-lasting impact.

Establishing a Strong Brand Identity and Platform

Emphasising the visual appeal of branding is crucial. When it comes to branding, aesthetics play a crucial role in creating a unique visual design, colour schemes, fonts, and other creative elements that companies use to establish their own distinct appearance and feel. Utilising aesthetics play a key role in creating a cohesive brand image that helps to convey a consistent brand story across various platforms and touch-points, while also establishing a visually impactful identity (Aqomi, 2023).

Just like a marketing coordinator, it is important for advertisements to accurately represent the brand's identity, encompassing its values, personality, and positioning. Consistency in visual aesthetics is crucial in establishing strong brand recognition and recall. Understanding the importance of visual aesthetics is key in establishing a positive connection between consumers and brands. It goes beyond simply creating attractive designs, as it plays a crucial role in captivating consumers with brands. Developing content for social media is necessary considering the allure of visually captivating designs, especially for high-end brands often associated with indulgent experiences (Kusumasondjaja, 2020). As per a recent study by Vinitha et al. (2021), the visual identity of a brand has a significant impact on how consumers perceive factors like sustainability and credibility. These perceptions, in turn, directly influence brand preferences and purchase intentions.

Every advertising platform and medium has its own distinct set of requirements and norms when it comes to visual aesthetics. What works well in a print advertisement may not have the same impact in a digital banner or social media post. Arhanchiague (2021) highlighted the importance of incorporating visual elements on social media platforms and found that these elements play a crucial role in developing a brand's identity. This is achieved through two mechanisms: representing the intangible elements that contribute to the overall identity of the company, and visually representing the tangible aspects of its physical identity. Both strategies have the potential to generate positive long-term customer relations outcomes, especially by enhancing the overall customer experience. Crafting impactful advertisements that resonate with audiences and deliver desired outcomes demands a proactive and attentive approach to overcoming the challenges of visual aesthetics. With a keen eye and careful consideration of the concerns, advertisers can craft compelling advertisements that effectively captivate and inspire consumers. When a company's brand exudes professionalism and refinement, it fosters a sense of trust in the consumer, motivating them to have confidence in the company's offerings and solutions.

CONCLUSION

Companies rely on the ingenuity, expertise, and know-how of numerous individuals who contribute to the development and delivery of media products and services (Malmelin & Virta 2021). However, it is crucial for companies to recognise the importance of different resources, such as creativity, and explore ways to optimise and enhance them as strategic assets. In addition, the illustrations in advertisements employ distinct visual effects. These effects enhance the appeal of an advertisement, maximising its ability to captivate a wide audience. Successful images are the ones that capture the audience's attention and evoke emotions. In order to create impactful images, it is crucial to have a deep understanding of how individuals react to different types of visuals. Visual design elements have a significant impact on people's emotions, enhancing the effectiveness of images. Creating a compelling image requires the perfect blend of various elements. Design and aesthetics play an important role in shaping users' perception of information, their ability to learn, their judgement of credibility and usability, and their overall assessment of the value of the promoted content. Visual aesthetics bring advertisements to life and make them appealing to the target customers.

Companies must comprehend the significance of diverse resources, including creativity, and learn how to utilise and enhance them to transform them into strategic assets. In addition, by adding distinctive visual effects to advertisements using illustrations, they can become more attractive to a broader range of viewers. An impactful image has the power to grab attention and stir up emotions within the audience. Understanding how people react to different types of visuals is essential in creating a compelling image as visual design elements play a crucial role in evoking emotions and maximising the impact of an image. An effective image is the result of various elements coming together harmoniously. Design and aesthetics are essential factors in shaping users' perception of information, credibility, usability, and the value they assign to promotional content so having a keen eye for visual aesthetics can bring advertisements to life and captivate the intended audience. Also, creating a consistent visual aesthetic is essential in establishing consumer trust and credibility. By understanding the importance of aesthetics and implementing visually appealing design elements, marketers can create a competitive advantage, maximise customer engagement, and achieve long-term success.

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Packaging Features and Purchasing Decisions: Strengthening the Local Home-Based Products

Nurul Hidayana Mohd Noor*

*Faculty of Administrative Science & Policy Studies, Seremban,
Negeri Sembilan, Malaysia
Corresponding author
Email: hidayana@uitm.edu.my*

Amirah Mohamad Fuzi*

*Faculty of Education, Universiti Malaya,
Kuala Lumpur, Malaysia
Email: amirah21@um.edu.my*

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**These authors contributed equally to this study*

ABSTRACT

Packaging is an unwitting marketing key that protects the product from damage and provides visual impact, uniqueness, and brand image on the sales shelf. The purpose of this study is to identify the influence of innovative packaging on consumer purchasing decisions. The findings are used to communicate the importance of product packaging to women entrepreneurs involved in the Dapur Mawar project and to formulate new designs for the participants. Dapur Mawar is a startup incubator, a program through which early-stage home-based entrepreneurs are empowered to form, grow, and succeed. A survey instrument in the form of an online questionnaire has been developed. The responses from 187 participants revealed that packaging attributes affect consumer purchase decisions, and features considered at the point of purchase were ranked as the top features. As implications for women entrepreneurs, packaging and product presentation are essential in empowering the food industry in the country or the global market. It adds value to products, which acts as a strategic tool to compete with competitors in the market. The recommendations for future studies are also highlighted in the final section.

Keywords: *Packaging features, Purchasing decisions, Home-based products, Women entrepreneurs*

INTRODUCTION

Entrepreneurs must focus on innovative activities to compete and survive in business (Ahmetaj et al., 2023). However, the external environment, such as increased competition and the ability to respond to demand and supply changes, is becoming more critical. Entrepreneurs should have the courage to try something new and dare to face the business risk. Entrepreneurs must try to solve problems using different methods or combining new and old methods. It is also agreed by Felicetti et al. (2023) that there is a potential relationship that shows entrepreneurs need to focus on achieving better innovation to have better business performance. Results from past studies have highlighted that in determining the success or

failure of product packaging innovation, knowledge, brand management, product placement, solid financial sources, and the ability to make changes are the most critical factors (Álvarez-González et al., 2023; Skawińska & Zalewski, 2020; Wang et al., 2023). Therefore, this study aims to identify the influence of product features on consumer purchasing decisions for local home-based products.

Creative and innovative product packaging can help to increase consumer confidence (Chen et al., 2020). By differentiating their products from competitors, businesses can build consumer trust in their brand. Consumers will see the product as the right choice to meet their needs. The uniqueness and added value offered by the product can make consumers loyal to the brand. Consumers tend to buy products repeatedly because they believe that the product provides better quality and benefits than competitors (Keller & Kotler, 2022). It also helps to increase market share. By having differentiated products, businesses can attract and retain new customers (Firouz et al., 2021). This will help businesses to increase their market share and beat competitors in business competition. By differentiating products and attracting consumer attention, businesses can increase their profitability. Consumers tend to be willing to pay higher prices for unique products that provide a better experience (Landwehr et al., 2023).

Good brand packaging uses graphic design to attract the eye and informative labels to share marketing messages (Wang et al., 2023). Visuals on packaging, such as packaging color, printed information, packaging materials, packaging design, brand image, innovation, and practicality, are among the elements that will influence consumer purchasing behavior (Álvarez-González et al., 2023; Kim & Ruedy, 2023). Aesthetic aspects such as color, brightness, and typography affect the consumer toward the product packaging on the sales shelf (Just & Goddard, 2023). Consumers take more time to look carefully at these products and packaging, directly affecting whether they buy the product or choose another brand (Palazzo et al., 2023). Innovative packaging can retain the taste of food, prevent it from becoming rancid or changing its taste, and last longer. Moreover, it improves product properties such as taste, appearance, aroma, and look style. Packaging also directly communicates to the consumer regarding product information, history, and condition (Fernandez et al., 2023). The manufacturers are racing to attract consumers' attention. However, there is one thing that neither they nor we can ignore, which is social responsibility towards the environment—using plastic, stiff board paper, metal, and glass as packaging materials should be replaced with other alternatives (Miao et al., 2024; Testa et al., 2020). For example, they use environmentally friendly materials as the main element of packaging innovation.

Therefore, entrepreneurs need brand-related knowledge to ensure that packaging innovation can attract consumers' attention. Currently, a small percentage of local products have successfully penetrated supermarkets, and this is difficult to achieve due to the weakness of the packaging quality, which does not meet the standards set by the supermarket owner. Packaging problems often include using poor-quality packaging materials, incomplete information, unattractive design and graphic design, and unsuitable packaging methods (Grosu, 2024; Ye et al., 2024). As a result, the guiding agency has provided various initiatives to improve the quality of packaging, such as training, grants, equipment, advisory services, and packaging design development. This ensures that micro-entrepreneurs in Malaysia can penetrate the supermarket market and compete with competitors in the global market. Past studies have identified various factors related to the challenges and obstacles entrepreneurs face in business. Among them are insufficient financial resources, lack of human capital, a shift in competitiveness in business, limited infrastructure, and poor government policy (Abaddi & Al-Shboul, 2024; Naguib, 2024). This challenge is also supported by Kuratko et al. (2023), who state that capital is one of the main obstacles local businesses face in developing sustainable packaging innovation. Businesses in other countries also face this crisis. According to Shahid et al. (2023), the barriers entrepreneurs face are the high economic cost of innovation, the occurrence of market crises or instability, and the lack of knowledge to implement innovation. Moreover, there is still a gap in existing studies that look at innovation issues from various angles, but the fundamental gap surrounding local home-based businesses must be addressed. This article aims to discuss the effect of packaging features on purchasing decisions critically. This article is divided

into four parts: the introduction, the literature, the research methodology used in the study, the findings, and a discussion of the study's results. The conclusions and suggestions for future research are provided at the end of this article. There is still a gap in research on packaging issues involving local entrepreneurs, especially micro-scale, that needs to be studied and seen in more detail from an aspect of the current practice of entrepreneurs in food product packaging innovation.

LITERATURE REVIEW

Purchasing Decision

The purchase decision is an essential component of consumer behavior that causes them to buy goods or services (Wang et al., 2023). According to Theben et al. (2020), the purchase decision requires buyers to choose from many offers, so they must be firm and knowledgeable. After the procedure is completed, the buyer must decide whether to purchase. Consumers make purchase choices when deciding between satisfying various desires and needs (Álvarez-González et al., 2023; Kim & Ruedy, 2023). The purchase decision is a person's purchase behavior in determining a product choice to achieve satisfaction according to the needs and desires of the consumer (Kim & Ruedy, 2023). According to Grosu (2024), the indicators used in buying goods or services are recognition of needs and desires, looking for information, valuation of purchase alternatives, purchase decisions, and behavior after purchasing. A purchase decision occurs after going through a stage or process. As expressed by Keller (2008), the purchase decision is a process in which the consumer goes through five stages: problem identification, information search, alternative evaluation, purchase decision, and post-purchase behavior. The first stage of the buyer's decision-making process is when the consumer recognizes a problem or need. At the level of need identification, marketers must examine and understand the types of needs that drive and direct consumers to their products or services. At this stage, consumers are attracted to find more information. Consumers can obtain information from several sources, such as personal sources (e.g., family, friends, neighbors, and colleagues), commercial sources (e.g., advertisements, dealers, distributors, websites, and packaging), public sources (e.g., mass media, organizations, consumer level, and internet searches), and sources of experience (e.g., handling, inspection, and product use). The next stage is for the consumers to use the information to evaluate alternative brands in a group of choices, and the consumer buys the product. The final stage is where consumers take further action after purchasing based on their satisfaction or dissatisfaction. Whether the consumer is satisfied is determined by comparing the consumer's expectations and performance. The consumer's reaction to products includes a) customer exit when the consumer is not satisfied and will not buy the product in the future; b) customer voice (complaining) when unsatisfied consumers submit complaints; and c) customer loyalty, when a satisfied consumer decides to buy back or spend again in the future. In determining whether the product produced can provide maximum satisfaction to consumers, several elements need to be paid attention to in the actual product, namely packaging, quality, brand name, and product characteristics (Wang et al., 2023). These elements allow entrepreneurs to differentiate their product offerings from competitors and overcome competitors by highlighting their uniqueness and dominating the market.

The Effect of Food Packaging Functionality on Purchasing Decision

According to Keller (2008), consumers are faced with more than 20,000 product options in a 30-minute shopping session, and based on the options available before the purchase decision is made, product packaging is one of the best marketing tools manufacturers can use to sell products. Keränen et al. (2023) stated that the most critical consumer characteristics of packaging are comfort and durability. It is

also supported by Kim and Ruedy (2023), who found that the quality of food products with attractive packaging gives a more positive perception to consumers compared to when it is packaged in conventional packaging. This ensures that the product produced is different from competitor products and remains relevant to the market (Just & Goddard, 2023). Several aspects and roles need to be considered in determining whether the packaging method differs from that of competitors. Among these include using visuals such as design, color, and graphics that can promote the product and give an excellent impression to the consumer (Palazzo et al., 2023). Food packaging is a packaging method for food. These packages provide protection and resistance against special physical, chemical, or biological requirements. It may require a nutrition facts label and other information about the food offered for sale. Packaging and package labeling have several objectives, namely: 1) physical protection, 2) obstacle protection, 3) containment or agglomeration, 4) transmission of information, 5) marketing, 6) safety, 7) convenience, and 8) portion control (Landwehr et al., 2023). The entrepreneurs must understand the food requirements for preservation, choose the proper packaging, use advanced packaging systems, use modern technology at every level, and act according to scientific requirements. If exports are to be made, it is essential to act according to the legislation of these countries regarding packaging, carry out packaging testing, and ensure brand awareness in packaging design. The chemical composition and physical and chemical properties of different foods differ from each other. Therefore, different foods have different preservative requirements for packaging. Packaging requirements may vary according to the structural characteristics of each food, and thus, the food packaging criteria change (Firouz et al., 2021).

The Effect of Food Packaging Characteristics on Purchasing Decision

A product can be offered to the market to get attention, purchase, use, consume, and fulfill a desire or need. A product can be a physical item, service, experience, event, person, place, property, organization, information, and idea (Keller & Kotler, 2022). According to Landwehr et al. (2023) and Testa et al. (2020), the following eight dimensions are referred to to determine the dimensions of product quality. These include: 1) performance (i.e., related to the functional aspects of an item), 2) features (i.e., performance aspects that are useful for adding essential functions, related to product choices and development), 3) reliability (i.e., matters relating to the probability or possibility of an item successfully carrying out its function), 4) conformance (i.e., the level of conformity to specifications that have been previously determined based on customer wishes), 5) durability (i.e., a reflection of economic life in the form of a measure of the durability or useful life of goods), 6) serviceability (i.e., characteristics related to speed, competence, convenience, and accuracy in providing services for repairing goods), 7) aesthetics (i.e., a subjective characteristic regarding aesthetic values which is related to personal considerations and a reflection of individual preferences), and 8) perceived quality. Quality is a marketer's positioning tool, directly impacting product performance. Quality can be narrowly defined as "free from defects." Most companies define quality in the context of customer satisfaction. Product quality is the product's ability to perform its function, which includes product durability, reliability, precision, ease of operation, and repair. Quality consistently reflects the level of targeted performance. Poorly designed packaging can turn off customers and result in lost sales, whereas innovative packaging can help businesses stand out from the competition and increase sales (Branca et al., 2023). In addition, the appearance of packaging design can differentiate between competing products and contribute to creating value for a product (Rambabu & Porika, 2020). For example, children react more positively and have more fun choosing products with more visually appealing packaging than regular packaging (Landwehr et al., 2023).

The Effect of Features Considered at the Point of Purchase on Purchasing Decision

Complete product information is also one of the factors that users consider when making a purchase (Álvarez-González et al., 2023; Kim & Ruedy, 2023). More precise information will attract the user's

interest in choosing the goods or services they want. Advertising sources from social media such as Facebook, Instagram, and YouTube help entrepreneurs market the goods they sell. Firat (2019) examines the value of advertising on YouTube on purchase intention. Results show that informative advertising can increase the value of ads on YouTube and attract users to make purchases. According to Kim and Ruedy (2023), information must constantly be updated to be easy to understand, accurate, complete, engaging, and relevant so the customer can decide to make online purchases. Therefore, product manufacturers, especially micro-entrepreneurs, must focus on packaging innovation to improve product marketing and attract purchasing power. Products whose packaging has been labeled as halal or with nutritional facts will emotionally influence the consumer to ensure that the product is safe and free from risk, which then affects the purchase decision process (Macall et al., 2021). The research results of Wang et al. (2023) show that the label significantly affects the brand image of the product. In addition, to comply with the rules and legislation set by the authorities, the entrepreneurs need to take advantage of the packaging to introduce the business identity through a logo or brand and inform about current promotions or offers (Fernandez et al., 2023). Moreover, the trend of sustainable food packaging requires less use of natural resources, which allows businesses to continue to produce food product packaging at a lower cost and improve its overall sustainability in the long term (Testa et al., 2020). A PDF QR Code can be printed along with food packaging, which allows many businesses to save their expenses from printing a thousand pages, which is expensive and harmful to the environment. PDF QR Codes are cost-effective, more environmentally friendly, and, at the same time, innovative. Figure 1 portrays the study's conceptual model.

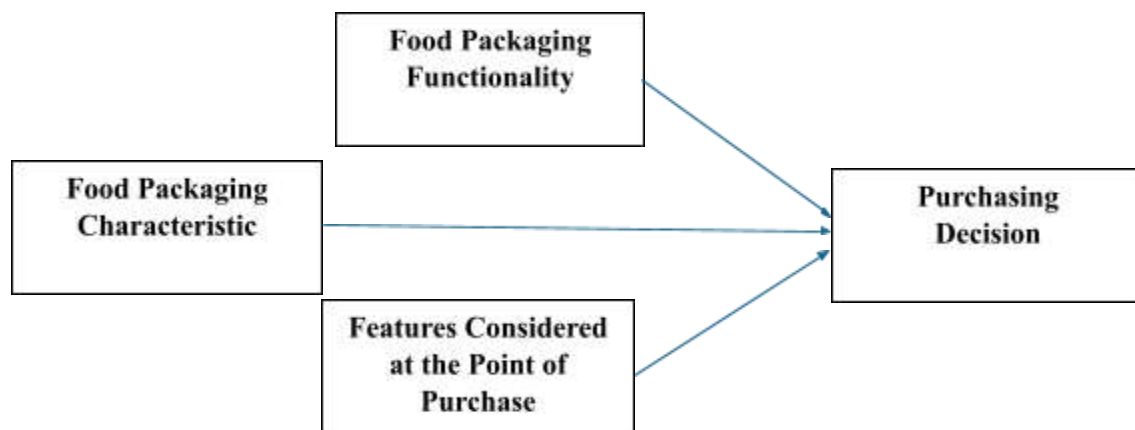


Figure 1. The conceptual model

RESEARCH METHODOLOGY

The study design is a quantitative survey approach. The sampling method used is a convenient sampling technique. The study population consists of consumers who live in the states of Selangor and Kuala Lumpur. The required number of samples is calculated based on Green's (1991) formula for regression analysis. According to Green (1991), the sample size of the research that has a multiple regression model is determined by the following formula: $N \geq 50 + 8m$ (m is a number of independent variables). Thus, the minimum sample required is 74. The total number of study samples obtained is 187, sufficient for the regression analysis. This study instrument consists of a modified questionnaire adapted from Bou-Mitri et al. (2021) and Shukla et al. (2022). The questionnaire is divided into three parts: the demographic part, the measurement of product features, and the purchasing decision. Variable measurement uses a 5-point Likert scale ranging from (1) strongly disagree to (5) strongly agree. The instrument items and Cronbach's

Alpha reliability value are shown in Table 1. Hair et al. (2010) state that Cronbach's Alpha values exceeding 0.70 are categorized as reliable items.

Table 1. Measurement of Variables

| Variables | Items | Cronbach's Alpha |
|--|---|------------------|
| Food packaging functionality | <ul style="list-style-type: none"> ● The food packaging should be able to protect the food ● The food packaging should be able to communicate information about the product correctly ● The food packaging should be easy to handle (carry/open/store ...) | 0.890 |
| Food packaging characteristic | <ul style="list-style-type: none"> ● I prefer safe food packaging (stable/ not lead to migration of material into the food) ● I prefer recyclable food packaging. ● I prefer easy-to-handle food packaging (carry, open, re-seal, pour, grip fraction, stack, store at home, empty) | 0.864 |
| Features considered at the point of purchase | <ul style="list-style-type: none"> ● I will look/check on the production/expiry date ● I will look/check on the price ● I will look/check on the brand ● I will look/check on nutritional facts ● I will look/check the list of ingredients ● I will look/check on health claims or halal label | 0.879 |
| Purchasing decision | What is the probability that you will purchase the product if it fulfills the packaging features? ... Possible/Impossible | 0.856 |

In statistical analysis, measures such as skewness and kurtosis are crucial to understanding data distribution. According to Kline (2011), the value of skewness and kurtosis should fall between the range ± 3.0 and ± 10 , respectively, to suggest normal distribution. Pearson's correlation is then used to determine if there is a relationship between the independent and dependent variables. If the correlation figure is positive, the relationship is unidirectional. Finally, to identify the most significant predictor, the study employed a linear regression technique to predict the relationship between two or more variables.

FINDINGS

Table 2 shows the frequencies and the percentage of respondents. This study's total number of participants was 187, whereby 102 (54.5%) were female, and 85 (45.5%) were male. The frequency and percentage of age show that the highest number of respondents in this study were aged 25-29, with 59 (31.6%). An examination of the highest level of education showed that most respondents received a bachelor's degree qualification (n=119, 63.6%). Next, in terms of living area, most participants live in Selangor (n=123, 65.8%).

Table 2. Profile of the Respondents

| Profile | | Frequency (n) | Percent (%) |
|---------|--------|---------------|-------------|
| Gender | Male | 85 | 45.5 |
| | Female | 102 | 54.5 |
| Age | 18-24 | 34 | 18.2 |
| | 25-29 | 59 | 31.6 |

| | | | |
|---------------------------|---------------------|-----|------|
| | 30-34 | 54 | 28.9 |
| | 35-40 | 40 | 21.4 |
| | Above 40 | 0 | 0 |
| Highest educational level | Secondary School | 0 | 0 |
| | Certificate | 4 | 2.1 |
| | Diploma | 54 | 28.9 |
| | Bachelor's Degree | 119 | 63.6 |
| | Master's degree/PhD | 10 | 5.3 |
| | Others | 0 | 0 |
| Living Area | Selangor | 123 | 65.8 |
| | Kuala Lumpur | 64 | 34.2 |

Table 1 shows the normality test of the data distribution, which was measured using the criteria of skewness and kurtosis. The analysis found that the skewness and kurtosis values were normally distributed (see Table 3).

Table 3. Normality & Reliability Results

| Variable | Mean | SD | Skewness | Kurtosis |
|--|-------|-------|----------|----------|
| Independent Variable: | | | | |
| Food packaging functionality | 4.671 | 0.781 | -0.216 | 0.278 |
| Food packaging characteristic | 4.450 | 0.519 | -0.431 | 0.345 |
| Features considered at the point of purchase | 4.621 | 0.447 | -0.654 | 0.562 |
| Dependent Variable: | | | | |
| Purchasing decision | 4.436 | 1.654 | -0.390 | -1.180 |

Based on Table 4, correlation analysis discovered that there is a significant relationship between food packaging functionality ($r = 0.311$, $p < 0.001$), food packaging characteristic ($r = 0.509$, $p < 0.001$), and features considered at the point of purchase ($r = 0.467$, $p < 0.001$) towards a purchasing decision.

Table 4. Pearson Correlation Results

| | | Purchasing decision |
|--|---------------------|---------------------|
| Food packaging functionality | Pearson Correlation | 0.311* |
| | Sig. (2-tailed) | 0.000 |
| | N | 187 |
| Food packaging characteristic | Pearson Correlation | 0.509** |
| | Sig. (2-tailed) | 0.000 |
| | N | 187 |
| Features considered at the point of purchase | Pearson Correlation | 0.467** |
| | Sig. (2-tailed) | 0.000 |
| | N | 187 |

Table 5. Regression Results

| Variable | Beta (β) | Sig. (p) | Tolerance | VIF |
|--|------------------|--------------|-----------|-------|
| Food packaging functionality | 0.340 | 0.000 | 0.848 | 1.176 |
| Food packaging characteristic | 0.269 | 0.000 | 0.944 | 1.062 |
| Features considered at the point of purchase | 0.514 | 0.000 | 0.867 | 1.169 |
| R ² | 0.543 | | | |
| Adjusted R ² | 0.589 | | | |
| F Change | 37.977 | | | |
| Sig | 0.000 | | | |

Table 5 shows that the tolerance value of the three independent variables was above 0.10, and the variance inflation factor (VIF) values were below 10, so it concluded that a regression model is independent of multicollinearity. Then, the R Square value obtained is 0.543, showing that the ability of food packaging functionality, food packaging characteristics, and features considered at the point of purchase in explaining the variation of change in the purchase decision is 54.3%, and other factors explain the remaining 45.7%. The ANOVA generated in this test also shows a significant probability value ($p=0.000$). Between food packaging functionality, food packaging characteristics, and features considered at the point of purchase, factors that have a dominant influence on purchase decision are features considered at the point of purchase motivation because it has the most considerable Beta value, namely 0.514, while the Beta value of food packaging functionality and food packaging characteristic are 0.340 and 0.269, respectively.

DISCUSSION

This article aims to identify the influence of packaging features on consumer purchasing decisions. The responses from 187 participants revealed that packaging features affect consumer purchase decisions, and features considered at the point of purchase were ranked as the top features. Businesses that can produce innovative products have the potential to win customer trust, gain competitive advantage, and maintain relevance in a constantly changing market. Therefore, micro-entrepreneurs need to focus on packaging innovation from an aspect of the use of more suitable and quality packaging materials, improvement of methods or techniques of packaging, and the use of environmentally friendly packaging materials in addition to improvements in information delivery, shape, color, and graphic design. Past studies have identified knowledge, attitude, awareness, finance, institutional network, and technology have been successfully identified among the factors that encourage entrepreneurs to conduct packaging innovation (Álvarez-González et al., 2023; Kim & Ruedy, 2023; Wang et al., 2023). The government must provide several types of assistance such as training, technologies, grant assistance, mentorship, and facilities to ensure that entrepreneurs continue innovating in packaging. Therefore, this institutional network is seen as one of the critical factors in packaging. Micro-entrepreneurs' collaboration with the industry and private institutions could help improve packaging innovation (Skawińska & Zalewski, 2020). Institutional networks are seen to be able to develop the attitude, skills, and knowledge of entrepreneurs towards innovative packaging (Álvarez-González et al., 2023). Good relationships between entrepreneurs and research institutions such as universities and community colleges also provide benefits in technology and knowledge sharing. Past researchers have emphasized the role of research and development in product innovation (Branca et al., 2023). Research and development can solve general problems and produce problem-solving options to advance or achieve business goals. For example, the university can formulate experimental activities to evaluate appropriate product packaging. Based on the study's output, Dapur Mawar food packaging has been formulated accordingly (see Figure 2). Dapur Mawar is a business

incubator program that provides training in the form of theory and practical hands-on. Under the program, 23 selected local home-based entrepreneurs are guided with various training modules that meet the needs of the industry and the current market.



Figure 2. Sample of food packaging for Dapur Mawar entrepreneurs

CONCLUSION

The findings revealed that packaging attributes affect consumer purchase decisions, and features considered at the point of purchase were ranked as the top features. Thus, innovation in products and services is an effort to create added value for customers. This involves the development of new ideas, technologies, or more efficient approaches to meet customer needs. Innovation helps them to differentiate businesses from competitors. It also can reduce production costs and improve profitability. Overall, this article successfully identifies the reason for micro-entrepreneurs to carry out packaging innovation. Although this study's empirical results support the current model, there are several limitations to the current study. First, the small sample size and convenience sampling methods limit the generalization of results. It warrants future research with a larger sample. Second, a cross-sectional research design could prevent us from inferring the causality effect. As such, the longitudinal research design could help to confirm the causal relationships between these variables. Third, the current study only examines a limited set of variables, and many factors could affect consumer purchasing decisions. Therefore, a future study might gain new insights by exploring the effects of other factors.

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A Conceptual Framework of the Influence of Packaging Design on Purchase Intention

Roszi Naszariah Nasni Naseri*

*Faculty of Business and Management, Universiti Teknologi MARA Cawangan Melaka,
Alor Gajah, Melaka
Malaysia
Corresponding author
Email: roszinaseri@uitm.edu.my*

Maryam Mohd Esa*

*Faculty of Business, Hospitality and Technology, Universiti Islam Melaka,
Malaysia
Email: maryam@unimel.edu.my*

Wan Kalthom Yahya*

*Faculty of Business and Management, Universiti Teknologi MARA Cawangan Melaka,
Alor Gajah, Melaka
Malaysia
Email: wkalthom@uitm.edu.my*

Geetha Muthusamy*

*Faculty of Business and Management, Universiti Teknologi MARA Cawangan Melaka,
Alor Gajah, Melaka
Malaysia
Email: geethamuthusamy@uitm.edu.my*

Roslinawati Ibrahim*

*Faculty of Business, Hospitality and Technology, Universiti Islam Melaka,
Malaysia
Email: roslinawati@unimel.edu.my*

Zurairah Jais*

*Faculty of Business, Hospitality and Technology, Universiti Islam Melaka,
Malaysia
Email: zurairah@unimel.edu.my*

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** These authors contributed equally to this study*

ABSTRACT

The objective of this study is to provide an understanding of the influence of packaging design on consumer purchase intentions through the presentation of a conceptual framework. The proposed conceptual framework incorporates fundamental principles derived from the Stimulus-Organism-Response (SOR) model and the Theory of Planned Behavior (TPB). This analysis explores the impact of external cues, particularly packaging design, on customers' cognitive and affective reactions (Organism), ultimately influencing their intentions to make a purchase (Response). The

elements of the Theory of Planned Behavior (TPB), including Attitudes, Subjective Norms, and Perceived Behavioural Control, serve as intermediary variables within the organism component of the Social Organisational Relations (SOR) model. It is important to incorporate both exterior cues and internal psychological aspects when studying consumer behaviour, as this integration provides vital insights into the psychological processes that influence customer purchase intentions.

Keywords: *Aesthetics, Purchase intention, Packaging design, Stimulus-organism-response (SOR) model, Theory of planned behaviour (TPB)*

INTRODUCTION

In a very competitive market, brands are consistently striving to establish distinctiveness and attract the interest of consumers. Packaging design plays a significant role in attaining these goals through its ability to visually captivate consumers, offer functional advantages, and communicate brand values (Chitturi et al., 2022). Consumer impressions and buying decisions are significantly influenced by its pivotal position. Recent research has brought attention to the diverse effects of packaging design on consumer behaviour, underscoring its significance not just in terms of visual attractiveness but also in terms of functionality and its capacity to convey brand identity (Smith, 2020).

According to the findings of a study conducted by Lee and Hong (2023), people tend to regard products that possess well-designed packaging as of superior quality and value. In addition, a study conducted by Simmonds and Spence (2017) revealed that packaging components, including colour, font, and material, have a substantial impact on consumers' emotional reactions and intents to make a purchase. Although the importance of packaging design is widely recognized, there is a significant research gap on the precise mechanisms by which it influences consumer purchase intentions (Adams & Johnson, 2023).

Previous scholarly investigations frequently focus on either the cognitive mechanisms triggered by external stimuli or the psychological determinants that impact behavioural reactions, often lacking a cohesive integration of both viewpoints (Kimiagari & Malafe, 2021). Therefore, there is an urgent need for a comprehensive paradigm that combines external stimuli and internal psychological elements to provide a detailed knowledge of how packaging design influences customer purchase intentions (Sun et al., 2023).

In order to bridge this existing knowledge gap, the present study aims to provide a comprehensive framework that combines fundamental components from the Stimulus-Organism-Response (SOR) model and the Theory of Planned Behavior (TPB). According to Kim et al. (2020), the SOR model proposes that organisms undergo cognitive and affective responses in response to environmental stimuli, which then influence their behavioural responses. While the Theory of Planned Behavior (TPB) suggests that attitudes, subjective standards, and perceived behavioural control play a mediating role in the relationship between stimuli and behavioural responses (Sultan et al., 2020).

This study seeks to cultivate a comprehensive comprehension of the impact of packaging design on consumer purchase intentions by amalgamating these two theoretical approaches within a conceptual framework. The integration of external stimuli and internal psychological elements, as outlined in our conceptual framework, is crucial in shaping consumer behaviour, specifically in relation to purchase decisions influenced by packaging design. Furthermore, the objective of this study is to make a scholarly contribution to the advancement of theoretical understanding in the domains of consumer behaviour and marketing by utilising this conceptual framework. Simultaneously, it seeks to provide valuable practical

insights for marketers and businesses, enabling them to enhance their packaging strategies in accordance with consumer preferences and expectations, guided by the principles outlined in the conceptual framework.

LITERATURE REVIEW

The integration of the Stimulus-Organism-Response (SOR) model and the Theory of Planned Behavior (TPB) offers a robust framework for understanding the influence of packaging on consumer intention to purchase. The SOR model, as proposed by Li et al. (2021), elucidates that environmental stimuli trigger cognitive and affective responses in organisms, which subsequently influence their behavioural responses. In the context of packaging, stimuli such as design elements, colours, and materials can evoke cognitive and affective reactions in consumers. For instance, vibrant colours or eco-friendly materials may stimulate positive emotions and perceptions, while dull packaging or excessive plastic usage might trigger negative reactions.

On the other hand, the Theory of Planned Behavior (TPB), as described by Lim and Weissmann, (2023), emphasises the mediating role of attitudes, subjective norms, and perceived behavioural control in shaping behavioural responses to stimuli. In the case of packaging, attitudes towards sustainability, social norms regarding environmentally friendly choices, and perceived control over purchasing decisions can significantly impact consumer intentions.

By integrating these two theories, the framework acknowledges that packaging stimuli not only directly influence consumer behaviour but also operate through cognitive and affective responses, attitudes, subjective norms, and perceived control. For example, a consumer may perceive eco-friendly packaging positively (cognitive response) and feel a social pressure to choose sustainable options (subjective norm), which together enhance their intention to purchase the product.

Furthermore, this integrated framework recognizes the dynamic interplay between cognitive, affective, and social factors in shaping consumer responses to packaging stimuli. It underscores the importance of considering both the immediate sensory reactions to packaging and the underlying beliefs, attitudes, and social influences that drive consumer behaviour.

The combination of the SOR model and the TPB offers a comprehensive approach to understanding the complex relationship between packaging stimuli and consumer intention to purchase, providing valuable insights for marketers and designers to create packaging strategies that resonate with consumers' cognitive, affective, and social dynamics.

THEORETICAL FOUNDATION

The study underlying the integration of the Stimulus-Organism-Response (SOR) model, Theory of Planned Behavior (TPB) and Silayoi and Speece (2007) model. The integration offers a comprehensive framework for understanding how packaging design influences purchase intention. The SOR model posits that external stimuli elicit cognitive and affective responses in organisms, which subsequently influence behavioural responses (Mehrabian & Russell, 1974). On the other hand, the TPB emphasises the role of attitudes, subjective norms, and perceived behavioural control in shaping behavioural intentions (Ajzen, 1991). While Silayoi and Speece (2007) model defined packaging elements which affect a consumer's buying decision. By integrating these theoretical perspectives, researchers can examine how packaging

design stimuli trigger cognitive and affective responses in consumers (Stimulus), which, in turn, influence their attitudes, subjective norms, and perceived behavioural control (Organism), ultimately shaping purchase intentions and behaviours (Response). Through empirical research applying this integrated framework, scholars can gain a deeper understanding of the psychological processes underlying consumer responses to packaging design and its implications for marketing practice.

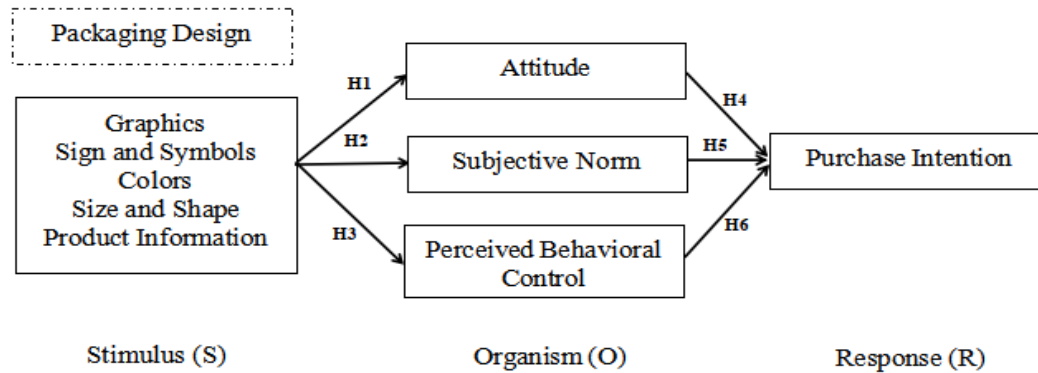


Figure 1. Conceptual framework

Source: Adapted from (Mehrabian & Russell, 1974; Silayoi & Speece, 2007; Ajzen, 1991)

HYPOTHESES DEVELOPMENT

Packaging Design and Attitude towards Sustainability

Packaging design encompasses several elements such as graphics, symbols, colours, shape, and product information (Stenis et al., 2017; Schifferstein et al., 2022). The amalgamation of these various elements conveys a visual representation, while packaging design plays a crucial role in shaping consumers' attitudes towards sustainability. Drawing on prior research indicating the impact of visual cues and eco-friendly packaging on consumer attitudes (Chen & Chang, 2017; Kim & Park, 2019), it is anticipated that aesthetically appealing and environmentally conscious packaging designs will positively influence consumers' attitudes towards sustainability. Therefore, based on the justifications above, the following hypothesis is derived:

H1: packaging design has a significant relationship on attitude

Packaging Design and Subjective Norm

Previous studies have examined the influence of packaging design on various psychological constructs, including subjective norms. For instance, research by James and Kurian (2021) found that packaging aesthetics can affect consumers' perceptions of social approval or disapproval regarding product choices. Similarly, Khan et al. (2021) demonstrated that packaging elements such as colors, images, and typography can convey social cues that shape subjective norms. Therefore, based on the justifications above, the following hypothesis is derived:

H2: packaging design has a significant relationship on subjective norm

Packaging Design and Perceived Behavioral Control

One important aspect that has gained attention is the impact of packaging design on perceived behavioural control, which refers to individuals' perceptions of their ability to perform a behaviour. Previous studies have investigated the influence of packaging design on various psychological constructs, including perceived behavioural control. For instance, research by Kovačević et al. (2022) demonstrated that packaging elements such as visual complexity and clarity can affect consumers' perceptions of their ability to use a product. Similarly, Chen and Chang (2017) found that eco-friendly packaging designs can enhance consumers' perceived control over their environmental impact. Therefore, based on the justifications above, the following hypothesis is derived:

H3: packaging design has a significant relationship on perceived behavioural control

Attitude and Purchase Intention

Numerous studies have explored the relationship between consumer attitudes and purchase intentions across various product categories (Costa et al., 2021). These studies have consistently found a positive correlation between favourable attitudes towards a product and the intention to purchase it. For instance, research by Shimul et al. (2022) demonstrated that positive attitudes towards cosmetic products significantly influence consumers' purchase intentions. Similarly, Chhetri et al. (2021) highlighted the importance of attitude formation in predicting consumers' purchase intentions regarding green cosmetics. Therefore, based on the justifications above, the following hypothesis is derived:

H4: attitude has a significant relationship on purchase intention

Subjective Norm and Purchase Intention

Previous research has shown that subjective norms, which represent perceived social pressures to perform or not perform a behaviour, significantly influence individuals' purchase intentions (Ruangkanjanases, 2020). For example, Wang and Chu (2021) found that consumers' perceptions of social approval or disapproval regarding product choices impact their purchase intentions. Similarly, Aziz et al. (2020) demonstrated that subjective norms play a crucial role in shaping consumers' attitudes and behaviours towards products. Therefore, based on the justifications above, the following hypothesis is derived:

H5: subjective norm has a significant relationship on purchase intention

Perceived Behavioral Control and Purchase Intention

Previous studies have examined the influence of perceived behavioural control, which refers to individuals' perceptions of their ability to perform a behaviour, on purchase intentions (Joshi et al., 2021). For example, Baccarella (2021) found that packaging designs that enhance perceived usability positively affect purchase intentions. Similarly, Nguyen et al. (2021) demonstrated that eco-friendly packaging designs can increase consumers' perceived control over their environmental impact, thereby influencing purchase intentions. Therefore, based on the justifications above, the following hypothesis is derived:

H6: perceived behavioural control has a significant relationship on purchase intention

CONCLUSION

This study lies in its comprehensive exploration of the influence of packaging design on consumer purchase intentions. By presenting a conceptual framework that integrates fundamental principles from the Stimulus-Organism-Response (SOR) model and the Theory of Planned Behavior (TPB), this research endeavours to provide a deeper understanding of the mechanisms underlying consumer decision-making processes.

Through this analysis, the study delves into the impact of external cues, specifically packaging design, on customers' cognitive and affective reactions (Organism), which subsequently influence their intentions to make a purchase (Response). By incorporating elements of the Theory of Planned Behavior (TPB) as intermediary variables within the organism component of the SOR model, the research elucidates the role of attitudes, subjective norms, and perceived behavioural control in shaping consumer perceptions and behaviours.

This study underscores the importance of considering both external cues and internal psychological aspects when examining consumer behaviour. By integrating these factors, the research aims to provide valuable insights into the psychological processes that drive customer purchase intentions. Ultimately, this holistic approach facilitates a more nuanced understanding of the complex interplay between packaging design, consumer perceptions, and purchase decisions, thereby offering practical implications for marketers and businesses seeking to enhance their packaging strategies and effectively engage consumers in the marketplace.

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Analyzing Irrational Purchase Decision on Aesthetic Packaging: The Moderating Role of Emotional Appeal

Geetha Muthusamy*

*Faculty of Business and Management,
Universiti Teknologi MARA Cawangan Melaka,
Alor Gajah, Melaka
Malaysia
Corresponding author
Email: geethamuthusamy@uitm.edu.my*

Roszi Naszariah Nasni Naseri*

*Faculty of Business and Management,
Universiti Teknologi MARA Cawangan Melaka,
Alor Gajah, Melaka
Malaysia
Email: roszinaseri@uitm.edu.my*

Wan Kalthom Yahya*

*Faculty of Business and Management,
Universiti Teknologi MARA Cawangan Melaka,
Alor Gajah, Melaka
Malaysia
Email: wkalthom@uitm.edu.my*

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**These authors contributed equally to this study*

ABSTRACT

This conceptual paper examines how aesthetic packaging affects the purchase decisions of cosmetic products through the Theory of Planned Behavior (TPB) model, irrational factors. The TPB model, comprising Attitude, Subjective Norms, and Perceived Behavioral Control, serves as the analytical framework for consumer behavior. The central issue lies in understanding the influence of packaging aesthetics on decisions, particularly the irrational aspects such as emotional appeal. Emotional appeal is hypothesized to act as a moderating factor, potentially amplifying the perceived value of aesthetically pleasing packaging and leading to less rational purchasing decisions. The methodology includes a purposive sampling of cosmetic product consumers, with the sample size determined using G*Power. Data analysis will be conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM). This study seeks to uncover the impact of emotional appeal on packaging aesthetics, providing insights to improve marketing strategies and packaging designs within the cosmetic industry.

Keywords: *TPB Model, Irrational Purchase Decisions, Aesthetic Packaging, Cosmetic Products, Emotional Appeal*

INTRODUCTION

The influence of packaging aesthetics on consumer behavior, particularly within the cosmetics industry, represents a critical area of study due to the sector's emphasis on visual appeal. This paper explores how packaging aesthetics impact purchasing decisions using the Theory of Planned Behavior (TPB) as the analytical framework. The TPB includes three key components: Attitude, Subjective Norms, and Perceived Behavioral Control. These components help explain consumer intentions and behaviors in a structured manner.

Aesthetic packaging involves visual and tactile elements designed to attract and engage consumers, including color, shape, design, and material. This study hypothesizes that emotional appeal moderates the relationship between aesthetic packaging and purchase decisions, leading to less rational consumer behavior. Emotional appeal in packaging can evoke immediate, subconscious responses that may overshadow a logical assessment of a product's utility or quality. For example, a beautifully designed cosmetic item might evoke feelings of luxury or exclusivity, driving impulsive purchases.

Previous research by Mick et al. (2004) and Havlena and Holbrook (1986) underscores the importance of cognitive and emotional components in consumer decision-making, areas often overlooked in studies. The abundance of products in the market further amplifies emotional reactions, as observed by Zhang et al. (2014) and Sheng and Joginapelly (2012). Specifically, while packaging aesthetics can attract consumers, the extent to which emotional appeal affects the rationality of purchase decisions remains unclear. This is particularly pertinent given the high prevalence of irrational behaviors observed in the cosmetics industry, as noted by Sinha (2003) and Bray (2008). The cosmetics industry in Malaysia is characterized by intense competition and a vast array of product options available through numerous retail channels, including online platforms. This abundance of choices complicates the decision-making process for consumers. Additionally, the industry is plagued by the proliferation of counterfeit products, which further exacerbates marketing challenges and intensifies competition among legitimate brands.

In this context, understanding the role of aesthetic packaging in influencing consumer purchase decisions becomes crucial. Despite the significant role of packaging aesthetics in attracting consumers, there is limited research on how emotional appeal moderates this relationship and affects purchasing behavior. Emotional appeal can enhance the attractiveness of packaging, making consumers more likely to develop positive attitudes, feel social pressures, and perceive fewer barriers to purchasing the product. This, in turn, can lead to more impulsive and less rational purchasing decisions (Wang et al., 2024).

By applying the TPB framework, this study aims to uncover the underlying mechanisms through which aesthetic packaging and emotional appeal influence consumer behavior in the cosmetics industry. The findings can provide valuable insights for marketers and designers, helping them to create packaging that not only attracts attention but also drives purchasing decisions.

LITERATURE REVIEW

Theory of Planned Behavior (TPB) Components

The Theory of Planned Behavior (TPB), formulated by Ajzen (1991), offers a comprehensive framework for understanding consumer decision-making. It posits that consumer intentions to perform a specific behavior, such as purchasing a cosmetic product, are influenced by three primary components:

Attitude, Subjective Norms, and Perceived Behavioral Control. These components collectively shape behavioral intentions and subsequent actions.

Attitude pertains to the consumer's overall evaluation of a behavior. In the context of cosmetics, it reflects how consumers perceive the product based on its aesthetic packaging. Ajzen (1991) emphasizes that attitudes are formed through an individual's beliefs about the outcomes of the behavior and the value placed on those outcomes. Positive attitudes towards aesthetically appealing packaging can enhance the likelihood of purchasing a product. This view is supported by research showing that consumers often develop stronger purchase intentions when they perceive packaging as attractive and engaging (Ajzen, 1991).

Subjective Norms involve the social pressures perceived by the consumer, which can influence their purchasing behavior. These norms are shaped by the expectations and influence of family, friends, and broader societal trends. According to Fishbein and Ajzen (1975), subjective norms play a critical role in shaping consumer decisions by aligning with social expectations. In the cosmetics industry, the influence of social circles and prevailing trends can significantly affect how consumers view and respond to packaging aesthetics (Fishbein & Ajzen, 1975).

Perceived Behavioral Control refers to the consumer's perception of their ability to perform the behavior, including their confidence in making the purchase. Ajzen and Madden (1986) argue that a higher perception of control increases the likelihood of performing the behavior, as consumers feel more capable of making the purchase. In the realm of cosmetic products, perceived control can be influenced by factors such as the ease of access to the product and the consumer's financial resources (Ajzen & Madden, 1986).

Emotional Appeal and Aesthetic Packaging

Aesthetic packaging encompasses the visual and tactile elements of a product's design, including color, shape, and material, aimed at attracting consumer attention. The significance of aesthetic packaging in influencing consumer behavior has been extensively documented. Packaging serves not only as a protective layer but also as a crucial marketing tool that can enhance the perceived value of the product (Underwood et al., 2001).

Emotional appeal in packaging refers to the capacity of design elements to evoke immediate emotional responses. Emotional appeal can significantly impact consumer behavior by creating a strong connection between the consumer and the product. Mick and Fournier (1998) demonstrate that emotionally appealing packaging can lead to heightened emotional engagement, which drives purchasing behavior beyond rational evaluation. Their study highlights that consumers often develop preferences and purchase intentions based on the emotional impact of the packaging rather than purely functional attributes (Mick & Fournier, 1998).

Havlena and Holbrook (1986) further explore the role of emotional appeal in consumer decision-making. They argue that emotional responses elicited by packaging can override logical assessments of product quality, leading to more impulsive purchasing decisions. This view is reinforced by Zhang et al. (2014) and Sheng and Joginapelly (2012), who observe that in markets with a high volume of products, emotional appeal becomes a significant factor influencing consumer choices. Their findings suggest that emotionally engaging packaging can create a sense of exclusivity and luxury, which can be particularly compelling in the cosmetics industry (Zhang et al., 2014; Sheng & Joginapelly, 2012).

Critical Overview

The literature on TPB components provides valuable insights into how Attitude, Subjective Norms, and Perceived Behavioral Control influence consumer purchasing decisions. These studies establish a solid theoretical foundation for understanding consumer intentions and behaviors. However, they often overlook the role of emotional appeal as a moderating factor within this framework (Muthusamy & Cheng, 2020).

Research on emotional appeal and aesthetic packaging highlights the importance of integrating emotional factors into the TPB framework. Emotional appeal can significantly impact how consumers perceive and respond to aesthetic packaging, leading to more impulsive and less rational purchasing decisions (Wachsmuth, 2023). Despite this, existing research frequently fails to fully explore how emotional appeal interacts with TPB components to shape consumer behavior.

The identified gaps suggest a need for further investigation into how emotional appeal moderates the relationship between packaging aesthetics and purchase intentions. Future research should aim to integrate emotional appeal within the TPB framework to provide a more comprehensive understanding of consumer decision-making processes, particularly in the cosmetics industry. Such studies could offer valuable insights for marketers and designers, enabling them to create packaging strategies that effectively leverage emotional appeal to drive consumer engagement and enhance purchasing decisions (Mehl et al., 2023).

Theoretical Underpinning and Research Hypotheses

The theoretical framework guiding this study is grounded in the Theory of Planned Behavior (TPB), which provides a comprehensive model for understanding how attitudes, subjective norms, and perceived behavioral control impact consumer purchase decisions. This model is augmented by incorporating the role of emotional appeal in aesthetic packaging, which is hypothesized to act as a moderating factor that influences the relationship between packaging aesthetics and purchase decisions.

According to TPB, an individual's attitude towards a behavior influences their intention to perform that behavior. In the context of this study, the attitude component refers to the consumer's overall evaluation of purchasing a cosmetic product based on its packaging aesthetics. According to TPB, consumers with a favorable attitude towards aesthetically appealing packaging are more likely to intend to purchase the product. Emotional appeal may amplify this effect by enhancing the positive evaluation of the packaging.

H1: *Attitudes towards aesthetic packaging are positively associated with purchase decisions for cosmetic products.*

Subjective Norms relate to the social pressures perceived by the consumer. It encompasses the influence of peers, family, and societal trends on the consumer's decision-making process regarding packaging aesthetics. Social influence can enhance the attractiveness of packaging by aligning with societal trends and expectations, thereby increasing the likelihood of purchase intentions.

H2: *Subjective norms towards aesthetic packaging are positively associated with purchase decisions for cosmetic products.*

Perceived Behavioral Control reflects the consumer's perception of their ability to perform the behavior, including their confidence and perceived ease of making the purchase decision. When consumers perceive that they have the means and opportunity to purchase a product, their likelihood of buying increases. Emotional appeal in packaging may reduce perceived barriers and enhance control perceptions.

H3: *Perceived behavioral control towards aesthetic packaging is positively associated with purchase decisions for cosmetic products.*

Emotional appeal is posited as a moderating factor that can influence the impact of aesthetic packaging on purchase decisions. The emotional response elicited by aesthetically pleasing packaging may enhance or alter the influence of the TPB components on consumer behavior.

H4: *Emotional appeal moderates attitudes towards aesthetic packaging and purchase decisions.*

When packaging evokes strong emotional responses, social pressures and trends are likely to have a more pronounced effect on consumer purchase intentions.

H5: *Emotional appeal moderates subjective norms towards aesthetic packaging and purchase decisions*

Emotional appeal may enhance consumers' perceived ability to purchase by making the product more desirable, thereby strengthening the positive impact of perceived control on purchase intention.

H6: *Emotional appeal moderates perceived behavioral control towards aesthetic packaging and purchase decisions*

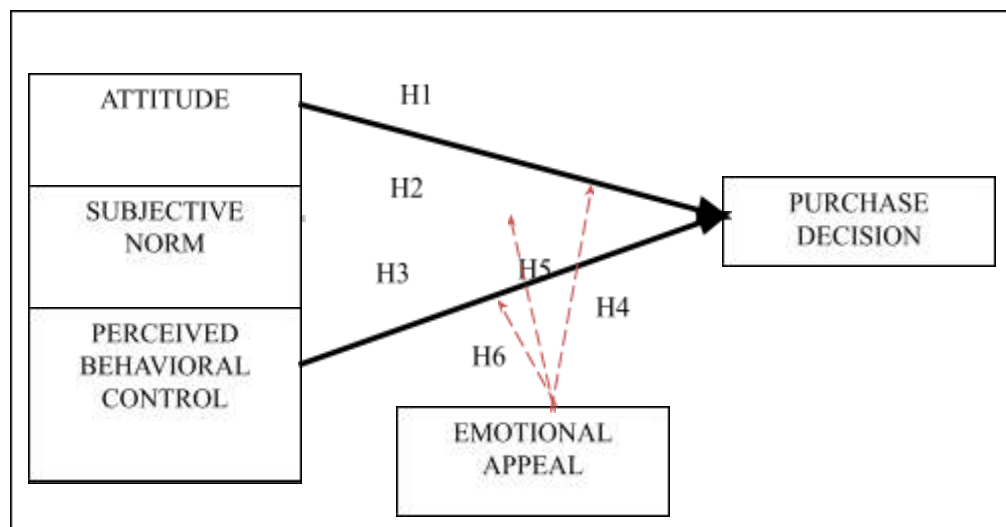


Figure 1. Theoretical framework of the study

RESEARCH METHODOLOGY

The research will utilize a quantitative approach for data collection and analysis. Respondents will be selected based on specific criteria, including age and gender, employing a non-probability purposive sampling method. The criteria for selection required participants to be adults, aged 18 years or older. Purposive sampling focuses on individuals chosen for their traits relevant to the study.

Data analysis will be conducted using SPSS software, with the measurement model evaluated through partial least squares (PLS) modeling, a form of structural equation modeling (SEM). The research variables will be defined using established scales derived from a comprehensive review of existing literature. The initial section of the report presents the demographic details of the participants, while the subsequent section focuses on five constructs assessed using a 7-point Likert Scale.

This approach is designed to provide a thorough understanding of the effects of aesthetic packaging and emotional appeal on consumer purchase decisions, contributing valuable insights to the cosmetics industry.

CONCLUSION

This study contributes to the understanding of how packaging aesthetics and emotional appeal influence consumer purchasing decisions in the cosmetics industry. By applying the TPB framework, the research provides a structured approach to examining the impact of these factors. The inclusion of emotional appeal as a moderating factor offers new insights into how aesthetic elements can affect consumer behavior beyond rational considerations.

The anticipated findings may have practical implications for marketers and designers in the cosmetics industry. The importance of designing packaging that not only attracts attention but also engages consumers emotionally. Understanding these dynamics can help brands create more effective packaging strategies, ultimately enhancing their competitive edge in a crowded market (Hagtvedt, 2023).

Overall, the study emphasizes the need for further research into the emotional and cognitive components of consumer decision-making, particularly in the context of aesthetic packaging. This research not only fills existing gaps in the literature but also provides actionable insights for improving packaging design and marketing strategies in the cosmetics sector.

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Sustainable Fashion Design: A Review and Perspective

Jinyue Hou*

*Department of Design Studies (Fashion), College of Creative Arts,
Universiti Teknologi MARA (UiTM), Shah Alam 40450, Selangor, Malaysia;
School of Apparel, Chengdu Textile College, Chengdu 611730, China
Email: 2022564269@student.uitm.edu.my*

Xinyue Wang*

*Department of Design Studies (Fashion), College of Creative Arts,
Universiti Teknologi MARA (UiTM), Shah Alam 40450, Selangor, Malaysia;
School of Textile Engineering, Chengdu Textile College, Chengdu 611730, China
Email: 2022950443@student.uitm.edu.my*

Sidian Yao*

*Department of Design Studies (Fashion), College of Creative Arts,
Universiti Teknologi MARA (UiTM), Shah Alam 40450, Selangor, Malaysia;
School of Art, Chengdu Textile College, Chengdu 611730, China
Email: 2021410524@student.uitm.edu.my*

Asliza Aris*

*Department of Design Studies (Fashion), College of Creative Arts,
Universiti Teknologi MARA (UiTM), Shah Alam 40450,
Selangor, Malaysia
Corresponding author
Email: arisasliza@uitm.edu.my*

**These authors contributed equally to this study*

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ABSTRACT

Fashion sustainability may potentially reduce greenhouse gas emissions and mitigate climate change by decreasing pollution and waste. However, sustainable fashion design received little attention in recent years. Here, the existing literature (237 publications) on sustainable fashion design is synthesized to understand the trends and future directions. Sustainable fashion design lacked systematic research methodology and paid little attention to down-cycling design. The sustainable fashion design can be classified into four categories of design methods, including reducing waste, reducing environmental impacts, redesigning, and extending the lifespan of garments. Slow fashion design was dominant and the hottest research topic in the past two decades. Further studies are required to explore the methodology of remake fashion design in sustainable fashion. Overall, this study has a large contribution to the theory and applications of sustainable fashion design by establishing a comprehensive documentation library, reviewing multiple aspects of studies, understanding the trends and development, summarizing the status and hot topics, identifying research gaps, and providing future research directions.

Keywords: *Sustainable fashion, Fashion design, Bibliometric analysis, Systematic review*

INTRODUCTION

Sustainability in fashion includes multiple aspects such as reducing pollution, waste, and carbon dioxide emissions, addressing overproduction, supporting biodiversity, etc. (Appolloni et al., 2023). It has been reported that the fashion industry has become the second largest polluter in the world (Woodside & Fine, 2019) and current fashion production accounts for approximately 10% of global carbon emissions; if this situation does not change, its proportion is predicted to rise to ~26% by 2050 (Appolloni et al., 2023). Globally, 920,000 tonnes of clothing are discarded each year, and most of these garments go to landfill or are incinerated (Sisodia & Parmar, 2022; Dan et al., 2023). However, six in ten people have prepared to change their consumer behavior to minimize environmental impacts in recent years (Purcărea et al., 2022). Eighty-six percent of 21,000 consumers from 28 countries would like to shift towards a more environmentally friendly company and expect to see more sustainable products on the market. Thus, controlling fashion production and pursuing sustainable fashion play critical roles in reducing greenhouse gas emissions and achieving sustainable development goals. In addition, the design phase of sustainable fashion dominates a product's environmental impact, while little information is available on design research. Some studies indicated that the development processes of products were determined by designers, with effects on the choice of materials, the level of fashion, and the environmental impacts of the product's lifecycle in circularity (Claxton & Kent, 2020). Despite its great importance, there is no systematic review on sustainable fashion design, obscuring our understanding and development of sustainable fashion.

In this study, the growing literature on sustainable fashion design is synthesized through a comprehensive bibliometric analysis and systematic review. The analysis was based on the records in the Web of Science and Scopus database as of 15 October 2023. Specifically, several aspects related to sustainable fashion design were presented, including the conceptual framework, research trends and development, current status and hot topics (i.e., up-cycling, timeless style, digital design, better quality, and flexible design), and future directions on design strategies. Our objective was to improve our understanding of the general aspects of sustainable fashion design, which will provide a baseline for future design strategies in the rapidly changing world.

METHODOLOGY

This study summarized and outlined sustainable fashion design through the combination of the bibliometric analysis with the systematic review. The bibliometric analysis mainly applies quantitative method on bibliometric data, which has been widely applied in diverse research fields, ranging from studying patterns to exploring the intellectual structure of the specific field (Donthu et al., 2021). A systematic review is a well-structured and reproducible approach for exploring patterns and identifying research gaps through searching and screening current literature (Ray & Nayak, 2023). In specific, several procedures for synthesizing sustainable fashion design are shown in Figure 1.

| Steps | Database | Searching and screening | Papers |
|--|--|---|--------|
| Search terms | WOS | (TS=(sustain*) OR TS=(eco-friendly) OR TS=(circular) OR TS=(green) OR TS=(recycl*)) AND (TI=(fashion) OR TI=(garment) OR TI=(cloth*)) AND | 234 |
| | Scopus | TITLE-ABS-KEY(sustain* OR eco-friendly OR circular OR green OR recycl*) AND TITLE(fashion OR garment OR cloth*) AND TITLE(design) | 313 |
| Assess all titles Add exclusions | WOS | NOT (TI=(supply chain)) OR TI=(educat*) | 217 |
| | Scopus | AND NOT TITLE (educat*) AND NOT TITLE (supply AND chain)) | 288 |
| Remove duplicates | Titles were organised into an Excel to remove duplicates | | 359 |
| Read all abstracts and remove off-topic studies | | | 237 |
| Summerise themes to develop a conceptual framework | | | |

Figure 1. The flow diagram describing the process of screening studies

The first step search the existing literature through keywords related to sustainable fashion design to achieve different themes and sub-themes as complete as possible. A structured search was performed in the databases of the ISI Web of Science (WOS) and Scopus as of October 2023. The used search phrases were “(TS=(sustain*) OR TS=(eco-friendly) OR TS=(circular) OR TS=(green) OR TS=(recycl*)) AND (TI=(fashion) OR TI=(garment) OR TI=(cloth*)) AND (TI=design)” in the WOS database and “TITLE-ABS-KEY(sustain* OR eco-friendly OR circular OR green OR recycl*) AND TITLE(fashion OR garment OR cloth*) AND TITLE(design)” in the Scopus database. Subsequently, all titles were scanned and excluded papers that contained two specific phrases (“NOT (TI=(supply chain)) OR TI=(educat*)” in the WOS database and “NOT TITLE (educat*) AND NOT TITLE (supply AND chain)” in the Scopus database). Furthermore, duplicates were removed and only research papers, book chapters, and perspective papers were considered. Finally, a total of 237 publications were selected for reviewing sustainable fashion design.

A CONCEPTUAL FRAMEWORK OF SUSTAINABLE FASHION DESIGN

By carefully reviewing the abstracts and contents of the screened literature, sustainable fashion design methods were organized and sorted into a systematic framework (Fig. 2). This framework was modified and improved based on the 3R (reduce, recycle, and reuse) Sustainable Design Framework (Manickam & Duraisamy, 2019). Following the life cycle of a sustainable fashion product, the sustainable fashion design can be divided into four parts. First, reducing energy waste needs to be considered at the manufacturing stage, and sustainable design approaches are recommended to utilize digital design and zero-waste methods. Second, the lifecycle of a product can be extended by designing timeless styles, higher quality, and flexible fashion products. Third, green materials (e.g., bio-material) can be used to reduce the environmental impacts resulting from the duration of productivity. Lastly, fashion products can be recycled at the end of their lifespan by redesigning them.



Figure 2. A conceptual framework summarizing the sustainable fashion design

RESEARCH TRENDS AND DEVELOPMENT

The year 2008 seems to be a threshold for the development of sustainable fashion design (Fig. 3). Before 2008, there were very limited publications related to sustainable fashion design, of which conceptualization enlightened. Then, various aspects on sustainable fashion design flourished, including the combinations of design with reducing waste, using green materials, reducing environmental impacts, and extending the lifecycle of garments. Although there were several slightly declining phases (e.g., 2013-2015 and 2017-2019), this field has received much attention and the number of publications has sharply increased since 2008. Based on the proposed conceptual framework, sustainable fashion design can be categorized into four domains, including reducing waste, slow fashion design, reducing environmental impacts, and redesign. The number of publications related to redesign and reducing environmental impacts did not change over the years. Indeed, the number of publications related to reducing wastage and slow fashion design gradually increased over with years, indirectly showing that reducing wastage and slow fashion design dominate sustainable fashion design at the current development stage.

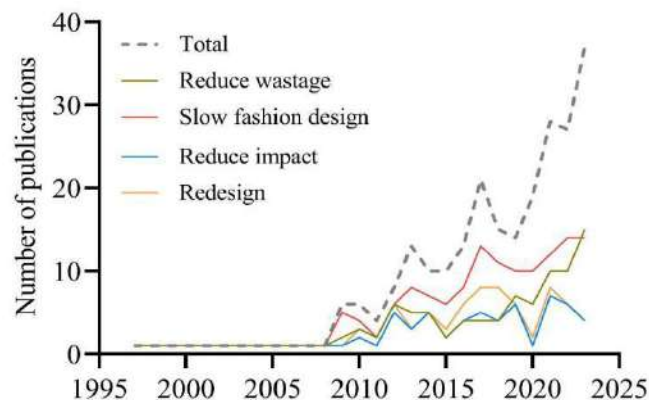


Figure 3. Number of publications over time for sustainable fashion design

Moreover, 19 sub-themes that almost covered sustainable fashion design were also extracted and then their frequency and duration were analyzed (Fig. 4). The post-consumer cycling design was dominant throughout the development of sustainable fashion design (2004-2023), followed by cultural design (2007-), smart clothing design (2005-), multiple functional design (2009-), and 3D design (2009-). Emotional design only had a relatively higher frequency from 2011 to 2021, while clothing materials (better material and bio-material) have received much attention since 2012. The artificial intelligence (AI) design was popular and important in the past years due to its rapid development and application. Nevertheless, other sub-themes (e.g., custom design, laser engraving design, digital printing, after-sales service, quality control, pre-consumer cycling, classic style, minimalist style, genderless style, etc.) had shorter duration and lower frequency, indicating these sub-themes were a minority and received fewer attentions in the sustainable fashion design.

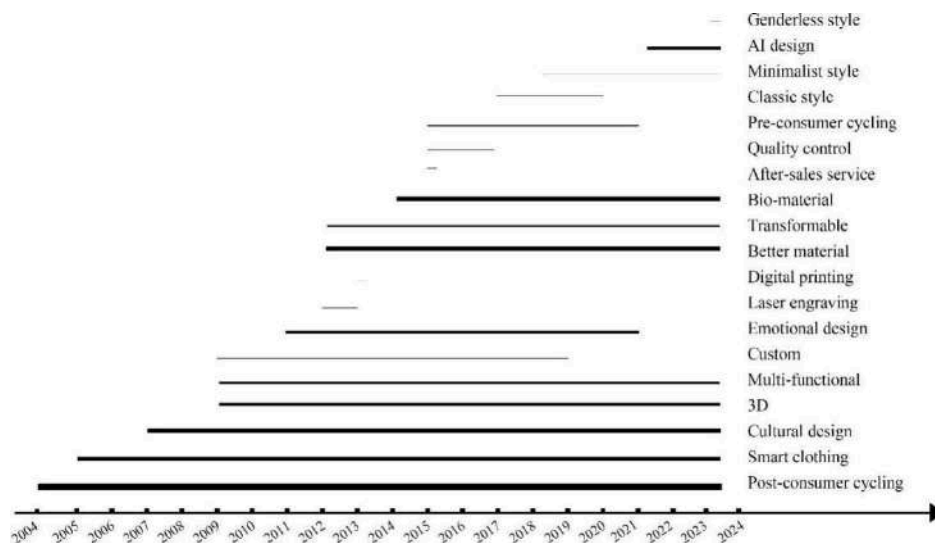


Figure 4. Frequency and duration of primary themes in sustainable fashion design. The length and thickness of the line indicate the duration and frequency of a specific theme, respectively.

CURRENT STATUS AND HOT TOPICS

Up-cycling Design

Redesign can be divided into up-cycling design and down-cycling design, while little information on the down-cycling design of clothing was found. Also, redesign is classified into pre-consumer cycling and post-consumer cycling design, of which post-consumer cycling design was dominant. The sustainable redesign of fashion is to redesign the discarded garbage into useful products. The garbage mainly includes clothing, wastage during the clothing production process, daily necessities such as hospital sheets, plastics, polyethylene terephthalate (PET) materials, marine garbage, etc. Moreover, redesign has four main approaches. First, waste can be transformed into fibers, fabrics, and final clothing. Second, waste clothing can be sewed into fabrics and remade into garments. Third, original clothing may be deconstructed and then reconstructed into new clothing. Lastly, original clothing can also be redesigned and improved through adding decorations. Among them, plastic bottles, PET materials, and marine garbage are mainly processed into fibers and then clothing. For instance, discarded clothing was transformed into protective clothing during the COVID-19 pandemic (Li & Liu, 2021), which not only prevent the spread of the virus but also alleviate the growing demand for personal protective equipment

during the pandemic. At present, this kind of redesigned clothing brand is mostly distributed in Europe and the United States, whereas there are very limited redesigned clothing brands in high-consumption countries.

Based on the literature regarding up-cycling design, the waste caused by fashion is increasing and has become the second largest source of pollution in the world. The major reason is that fashion is updated faster and faster due to the improvement of the clothing industry and consumption power. Although the number of published articles increased, the research contents and methods have not advanced in recent years. Most of the studies focused on clothing products and did not consider users' experiences. Only 5 of 32 papers considered the investigation and validation of design methods for consumers. Thus, further studies should combine fashion redesign with consumer demands.

Timeless Style Design

A timeless style can be achieved through minimalist design, classical design, genderless style, and cultural design (Goldsworthy et al., 2018). The selection of traditional elements mostly depends on the cultural heritage of the country, such as traditional fabrics and craftsmanship in China. Although modern clothing has been designed using traditional elements, incorporating of traditional elements into sustainable fashion design has been discussed intensely in recent years. In addition, classical style, minimalist style, and genderless style are also mentioned, which have been proven to be more timeless and lasting fashion styles. Furthermore, classic clothing style is more timeless and sustainable, including the works of Alexander van Slobbe, the use of personalized low-frequency, and the application of golden geometry and the Fibonacci geometric elements in fashion (Maldini et al., 2019). Suárez et al. (2023) concluded that minimalism can reduce incentives to discard clothing through lots of interviews and market investigations with company and consumer representatives, allowing us to accurately capture the sustainable fashion style. Reis et al. (2022) also constructed the genderless style design theory by using the triangulation method.

Digital Design

Digital design refers to the applications of digital technologies (i.e., 3D and AI) in clothing design (Akram et al., 2022) due to reduction in energy consumption, faster and more accuracy, and more resource efficiency, which is a more sustainable way to design using the python language and the AI approach (Lee, 2022). The 3D technology has been applied in clothing design of sustainable fashion since 2009. Compared with traditional clothing design, it is more efficient, personalized, and has low energy consumption (Kang et al., 2021). The 3D clothing design technology has been largely enhanced by using machine learning and deep learning algorithms. Through users' personalized demands and genetic algorithms, the 3D software can help designers quickly provide high-quality personalized designs for users. Wang et al. (2023) used a machine learning algorithm to realize a new interactive design method for sustainable fashion customized clothing, allowing designers to provide consumers with high-quality personalized design solutions through the combinations of artificial neural network, genetic algorithm, probabilistic neural network, and supporting vector regression. In addition, Deng et al. (2023) used the artificial intelligence tool named the Multimodal Unsupervised Image to Image Translation algorithm to generate diverse and fashionable designs, thereby enriching the uniqueness of national costumes and synergistically integrations of traditional craft methods and modern technology. Finally, digital design has also developed new design processes, such as digital printing and laser engraving. Compared with traditional manufacturing processes, digital processes have greatly improved manufacturing efficiency and have been widely used in the market.

Better quality

Technological development has led to diverse directions in smart clothing design, such as health monitoring, sports benefits, fitness tracking, and social activities (Muhammad Sayem et al., 2020). Some clothes with medical functions bring great convenience to patients and the elderly, and designed clothes using bio-sensors can monitor electrocardiograms (Sundaram et al., 2019). In addition to smart clothing, clothing materials have shown better quality in recent years. In this field, it mainly serves both aesthetic and functional aspects. In terms of aesthetics, 3D printing technology is mainly used to design fabrics with originality, personalized style, or additional decorative functions (Lekeckas et al., 2023). Regarding functions, the primary focus is on cooling or heat preservation, self-cleaning fabrics, dyeing capabilities, flame-retardant fabrics, UV protection, etc.

Most studies showed that garment quality is the main reason for its short lifespan (Goworek et al., 2020). The main quality problems with garments are fading and pilling, and researchers must improve the quality of garments by improving dye formulations and strengthening the quality testing process (Cooper & Claxton, 2022). However, some studies have proposed that it is very difficult to form management standards due to differences in business culture, operating practices, and knowledge between companies. Apart from pre-consumption quality management, after-sales service is much more important than before-sales quality standards for extending garment lifetime. Some studies also showed that the main reason people discarded clothing was out of fashion. Garment products are unique, and their lifespan depends not only on their material properties but also on their ideology. Extending the user's time with a product is often related to the emotional strength of the product by consumers (Wu et al., 2021). Currently, there are some ways to create more emotionally valuable products based on consumer personalization. For example, the emotional value of collaboratively designed clothing is along with a longer lifetime (Townsend et al., 2019), especially for custom-made clothing. The higher price of custom-made clothing than regular clothing has been one of the reasons why it has not been available for most consumers. However, decreased manufacturing costs and improved digital design technologies may lead to the better development of custom clothing in the future.

Flexible design

The flexible design with deformable product characteristics may be more adaptable, with two major strategies of multi-functional and transformable. Multi-functional garments have adhered to the design concept of "one thing for multiple uses, one garment for multiple wear" which achieves the multifunctionality of clothing and the purpose of sustainable fashion (Jalil & Shahrudin, 2020). Users want clothing to be transformable from three aspects: functional, hedonic, and social; among the variable functions, the most popular ones are the deformation of color and sleeve length. Five of six documents on deformable clothing design are about modular design, showing that scholars consider modular design to be an important design method for realizing deformable clothing. Modular design has been proven to be one of the most effective sustainable fashion design methods. By using draping, folding, paneling, and gathering elements, the structure and style of a garment can be changed to enhance the flexibility of the product (Ibharim & Mohd Tajuddin, 2021). There are three kinds of modular design approaches: whole into parts, parts to the whole, and compounded modular between the two. Garments have been designed for children that can grow as they grow, from one size up to seven, which effectively reduces the number of garments that consumers must buy. Nevertheless, there are also some studies on slow fashion that goes beyond the single-user lifetime to multiple-user lifetime regarding one production (Goldsworthy et al., 2018), while it seems that it is far away from entering the market and be used by everyone for a long time. Thus, future studies need to develop flexible design theories to achieve sustainable fashion goals.

FUTURE DIRECTIONS

Although previous studies advance our understanding of sustainable fashion design, several aspects should be addressed in the future. First, many studies have shown that the most critical factor affecting the longevity of a garment is the quality of the garment; in contrast, few studies have been conducted on quality control and after-sales service of clothing. After-sales service can directly solve the problem of end-of-life of the product and help consumers improve the quality and prolong the lifespan of the fashion. Second, current studies are more subjective and less objective, and more descriptive and less quantitative, future studies need more objective and quantitative studies to accurately and effectively advance sustainable fashion design. Third, fashion messaging has become more populist and flattened (Kalbaska et al., 2019), while there is a gradual rise in fashion concepts (e.g., remaking) amongst a small section of the population. Remake fashion can effectively improve unsustainable fashion (O'Donnell & Pranger, 2020), and it is an inevitable trend based on the current fashion trends. This is demonstrated by the rapid popularity of vintage fashion and second-hand clothing (Michalowska, 2023).

CONCLUSION

In summary, this study systematically reviews the literature on past trends and future directions for sustainable fashion design through bibliometric analysis and systematic review. A conceptual framework for sustainable fashion design is developed, in which each sustainable fashion design method is categorized and organized into a circular process framework of sustainable fashion. Sustainable fashion design can be classified into four parts, including recycling, reducing wastage, reducing environmental impacts, and extending the lifespan of garments. This study also reviews and organizes the current state of studies, finding that the topic of slow fashion design is the most focused. Finally, remade fashion may be dominant in sustainable fashion design in the future.

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The Cultural Significance of Malay Woodcarving Motifs: A Case Study of Rumah Warisan Hajah Kundur

Juliana Adlin Ahmad*

*College of Creative Arts, Universiti of Teknologi MARA Shah Alam,
Shah Alam, Selangor
Malaysia*

Corresponding author

Email: juey973@gmail.com

Arba'iyah Ab Aziz*

*College of Creative Arts, Universiti Teknologi MARA, Puncak Alam Campus,
Shah Alam, Selangor
Malaysia*

Email: arbaiyah@uitm.edu.my

Mohamad Kamal Abd. Aziz*

*College of Creative Arts, Universiti Teknologi MARA, Puncak Alam Campus,
Shah Alam, Selangor
Malaysia*

Email: mkamal054@uitm.edu.my

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** These authors contributed equally to this study*

ABSTRACT

This study examined the Malay woodcarving motifs displayed at Rumah Warisan Hajah Kundur, a distinguished Malay heritage house currently located in Politeknik Port Dickson, Negeri Sembilan, Malaysia. The study utilised qualitative research methods such as site observations, photographic recording, and analysis of secondary data to document and assess the wood carving motifs found on the wooden structure. The house had been moved and restored in order to preserve its cultural significance. The investigation uncovered that the woodcarvings of Rumah Warisan Hajah Kundur prominently featured floral motifs, with geometric and combination designs also being prominent. This study not only recorded the visual qualities of the carvings but also analysed their symbolic meaning, revealing the interdependent relationship between artistic representation and cultural heritage in the practice of Malay woodcarving. Concentrating on this singular, historically significant residence of Rumah Warisan Hajah Kundur, the study underscored the significance of Malay woodcarving in vernacular architecture in Negeri Sembilan. It emphasised the imperative for continuous documentation and conservation of the intangible cultural heritage represented by Malay woodcarving motifs and Malay traditional houses.

Keywords: *Motifs, Traditional Malay houses, Negeri Sembilan, Woodcarving*

INTRODUCTION

The art of Malay woodcarving has been instrumental in producing highly detailed and skillfully crafted masterpieces, which serve as a testimony to the creativity and expertise of Malay artists across various periods of time. Woodcarving is a form of decoration that adds visual appeal to different items and architectural features through a unique style of ornamentation and elaboration. Skilled artisans utilise refined carving techniques to convert ordinary surfaces into exquisite pieces of art, embellishing them with beautiful themes, patterns, and textures (Sumardianshah Silah et al., 2021). Whether embellishing furniture, door panels, religious objects, or architectural elements, woodcarving bestows a sense of elegance, opulence, and cultural or spiritual significance upon the final product. Thus, style of ornamentation not only beautifies the object but also reflects the creativity, craftsmanship, wisdom, and cultural heritage of the artisans who create it by using diverse types of techniques, as cited by Neha and co-authors in 2007 (Irfan Ullah, 2018).

The philosophy aspect of Malay woodcarving lies in its deep connection to the divinity, spiritual symbolism, cultural beliefs, and traditional values. Malay woodcarving often conveys philosophical concepts of life and spiritual connection with the Divine who is the master of the Universe and beyond such as harmony with nature, reverence for ancestry, and the interconnectedness of life (Mohd Sabrizaa et al., 2019). Additionally, the process of woodcarving itself is often regarded as a meditative process, embodying patience, and a deep respect for the material being worked upon (Zumahiran Kamarudin et al., 2020). Thus, Malay woodcarving facilitates not only as a form of artistic expression but also as a mean to reflect and contemplate upon deeper philosophical ideas embedded within Malay culture.

There appears to be a multifaceted connection between Malay woodcarving and vernacular architecture. Woodcarving operates as a significant decorative element in traditional Malay vernacular architecture, enhancing the aesthetics of various structural components such as beams, pillars, door frames, and window panels. Moreover, the motifs and patterns carved into wood surfaces often harmonise the overall architectural style, creating a cohesive and visually captivating environment (Iryani Abdul et al., 2024). However, recent circumstances indicate a gap in the research and analysis of Malay woodcarving heritage, particularly in traditional Malay houses in Negeri Sembilan. Scholars have engaged in dialectic debate about Malay woodcarving motifs in relation to vernacular architecture since the 1960s, but there has been minimal subsequent documentation or follow-up in this regard, particularly in Negeri Sembilan. Therefore, this article aims to analyse, identify, and categorise wood carving motifs that are still preserved at Rumah Warisan Hajah Kundur (RWHK). RWHK was built in 1902, and it is one of the oldest traditional houses found in Negeri Sembilan. RWHK was formerly located in Kampung Chembong, Rembau but due to its dilapidated state and cultural significance it has, the house was dismantled, relocated, and refurbished at the Politeknik Port Dickson campus in Port Dickson.

LITERATURE REVIEW

Malay Woodcarving Motifs

Traditional Malay woodcarving is the elaborate woodcarving technique used by Malay cultures within their cultural framework. It comprises an extensive array of inherited methods, aesthetics, and themes passed down through the generations, frequently expressing the Malay people's cultural heritage, values, and beliefs. This type of woodcarving usually requires the expert manipulation of several carving tools to create complex patterns, motifs, and designs on wood surfaces. Customary Malay woodcarving is renowned for its delicate artistry, exacting mindfulness, and application in various architectural components, furnishings, utilitarian items, and religious objects, including mosques. Its aesthetic appeal

and cultural significance make it an indispensable Malay identity component. In their 2023 research, Siti Aisyah et al. referenced Noorhaiza's hypothesis concerning the essence of traditional carving, which revolved around the processing of six core components: the origin or source, design, motif, decorative style, technique, and philosophy.

Aida Kesuma et al. (2021) define Malay woodcarving as a distinctive style characterised by curvilinear fretwork. Typically found in architectural components, these carvings draw inspiration from natural elements, particularly flora. The definition further suggests that Malay woodcarving embodies a philosophical aspect, with motifs and designs carrying cultural or symbolic significance within Malay culture. Additionally, the authors emphasise the meticulous filling of motifs from end to end, reflecting every carver's aspiration to achieve visually cohesive and balanced designs within the architectural space. In design and art, a motif is a recurring element, pattern, or theme used consistently throughout a composition or artwork. While motifs are typically associated with two-dimensional designs, Malay woodcarvers, with years of expertise, often accentuate carvings in three-dimensional forms, allowing observers to view them from all sides and angles. Nur Amalina et al. (2022) postulated that specific motifs elicit thoughts or memories that are important for both the artist and society. Furthermore, admiration is evoked when motifs are selected to include in the design. Prior research has identified five essential woodcarving patterns: calligraphy, flora, animals, geometry, and the cosmos (Hanita Yusof et al., 2021; Ismail Said, 2019). The overwhelming grandeur of the surrounding environment has highlighted the deep respect Malay carvers have for the natural world, its perfection, and its beauty, allowing carvers to create a far more replicable abstractive visual exegesis of human life by incorporating their interpretations into the motif designs.

Traditional Malay Houses in Negeri Sembilan

The architectural style of the traditional Malay house is not just aesthetically pleasing, but it also serves a purposeful function with each structural element. In their 2018 study, Misnat and co-authors highlighted that the unique architectural identity of specific local communities, including the traditional Malay houses, is intricately moulded by a diverse array of cultural influences (Noor Hayati et al., 2021). These influences, such as deeply ingrained beliefs, religious practices, customary traditions, and communal activities play a pivotal role in shaping the overall house design, its individual segments, and even the woodcarvings that adorn the structure.

Negeri Sembilan distinguishes itself from other cultures in the region due to its long-standing adherence to a 3000–4000-year-old custom known as the matrilineal system (Noor Hayati et al., 2021). This system, known as *Adat Perpatih*, is one of the world's oldest surviving matrilineal systems. Two prominent characteristics of this tradition are the transmission of property and inheritance exclusively through the female lineage. As a result, daughters are the recipients of riches, land, and property instead of sons, and family ancestry is traced through the maternal line. The traditional Malay houses in Negeri Sembilan are designed to cater to the demands and provide comfort for the house owners, particularly the women and families who reside there. Therefore, the house's architecture incorporates economic and social endeavours, ceremonial philosophy, religious beliefs, and cultural factors.

The architectural style of traditional Malay houses in Negeri Sembilan is the fruit of the confluence of two cultures: the Minangkabau and the Biduanda (*Jakun*) communities, as noted by Masri in 2012 (Nor Syawallina et al., 2022). Discernible characteristics of the architecture include several layout typologies such as the *serambi* (verandah), *rumah ibu* (the main house), *loteng* (attic), and *rumah dapur* (kitchen). However, the most prevalent characteristic that has always been the subject of numerous study studies is the slight curving roof at both ends, which serves as a symbol to convey the regional identity of Negeri Sembilan (Mohamad Hanif et al., 2022; Noor Hayati et al., 2021; Rohayu Daud et al., 2021). Therefore,

we can summarise how, over the years and through successive generations and adaptation, cultural influences, architectural features, and symbolic elements have converged to shape the identity of traditional Malay houses in Negeri Sembilan.

RESEARCH METHODOLOGY

This study employed a qualitative approach, utilising primary and secondary data sources. The primary data was gathered through a site visit at Politeknik Port Dickson (PPD), facilitating observation and visual documentation of the carving motifs at Rumah Warisan Hajah Kundur (RWHK) and their placements. Details such as the owner's name, the construction year of the house, and its current address were also recorded during the visit. Secondary data, comprising earlier research and scholarly discourses, supplemented the primary findings. The primary objective of this study was to identify and categorise the carvings discovered at RWHK, aligning with the qualitative methodology adopted.

Initially situated in Kampung Chembong, Rembau, the house had deteriorated and was abandoned. However, with the assistance of special funding from the Civil Engineering Department of UNESCO, the Architecture Unit at PPD took on the task of dismantling and relocating the house. It was successfully moved from its original site for historical and educational preservation. The house was built sometime in 1902, and it now serves as a cultural hub dedicated to Malay heritage, notably highlighting the unique *Adat Perpatih* tradition of Negeri Sembilan. While adorned with carvings throughout, the *serambi* and *rumah ibu* sections display particularly intricate designs.

FINDINGS

| Homeowner | Year | Address |
|------------------|------|-------------------------|
| Rosnah bt. Ahmad | 1902 | Politeknik Port Dickson |

Findings of Motifs at Rumah Warisan Hajah Kundur



Figure 1. Motifs of the fascia boards on Rumah Warisan Hajah Kundur

(Source: Author's personal collection)

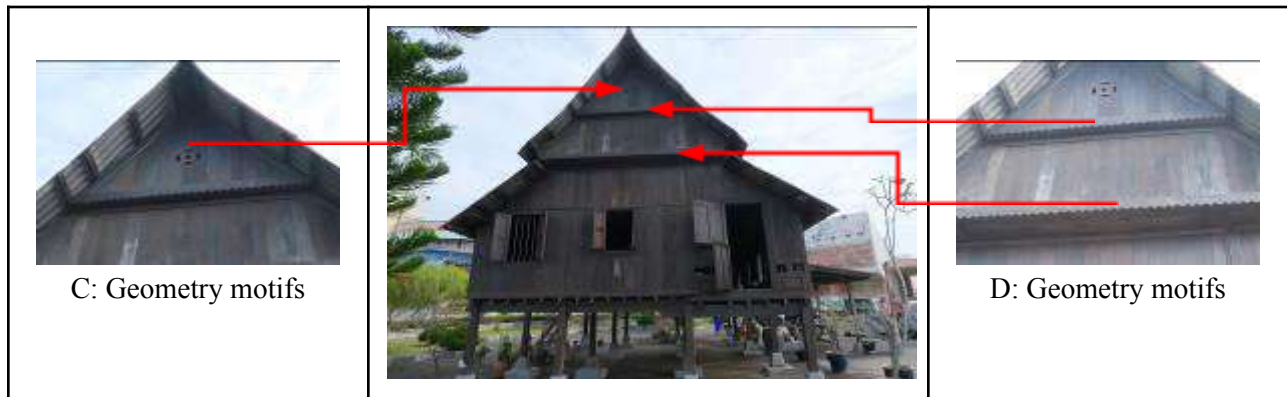


Figure 2. Motifs on the gable end and fascia boards

(Source: Author's personal collection)

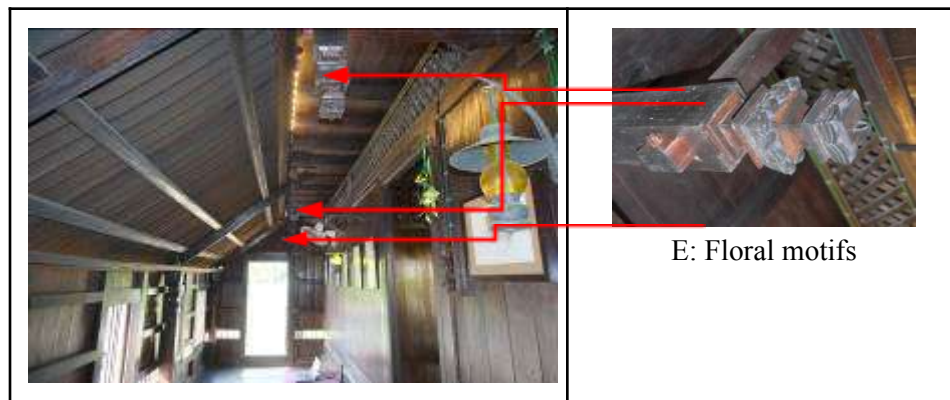


Figure 3. Motifs of the buah buton in the serambi area

(Source: Author's personal collection)



Figure 4. Motifs of the pillars by the entrance area
(Source: Author's personal collection)

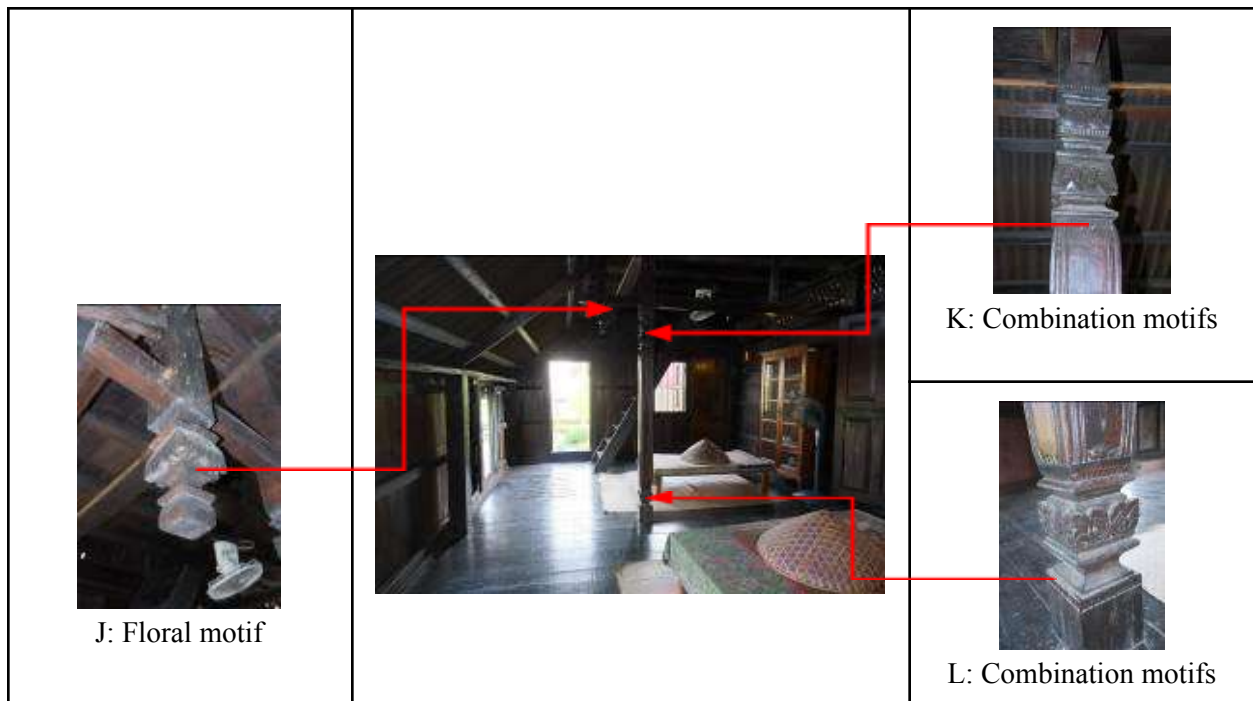


Figure 5. Motifs on the buah buton and tiang seri in the rumah ibu area
(Source: Author's personal collection)

Analysis of Motifs at Rumah Warisan Hajah Kundur

Table 1. Motifs on the fascia boards


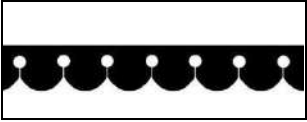
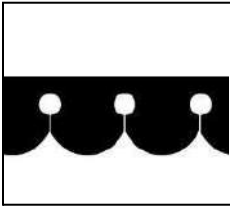
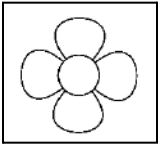

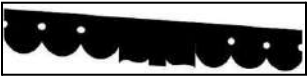
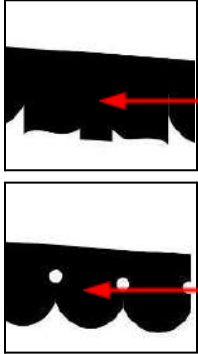

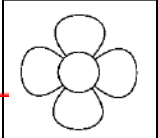

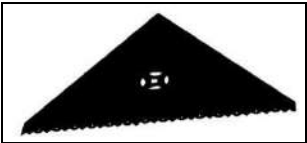
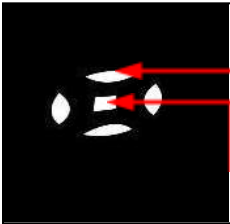

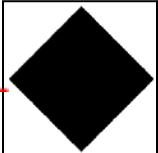
| Picture | Illustration | Illustration | Motif |
|---|---|---|---|
|  <p>A: Floral motifs</p> |  |  |  <p>1) Potongan bunga</p> |
|  <p>B: Combination motifs</p> |  |  |  <p>2) Kelawar bergantung</p>  <p>3) Potongan bunga</p> |

Table 2. Motifs on the gable end and fascia boards

| Picture | Illustration | Illustration | Motif |
|---|---|--|--|
|  <p>C: Geometry motifs</p> |  |  |  <p>1) Diamond</p>  <p>2) Oval</p> |


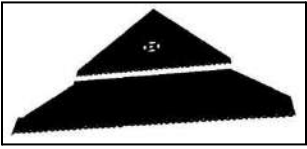

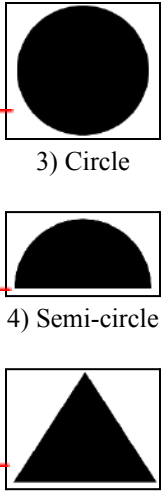

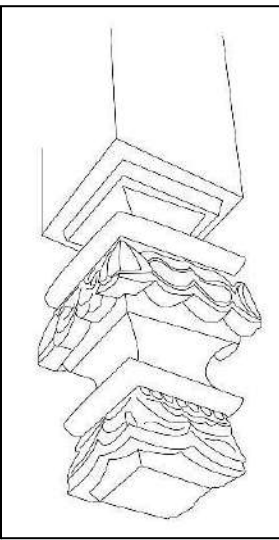
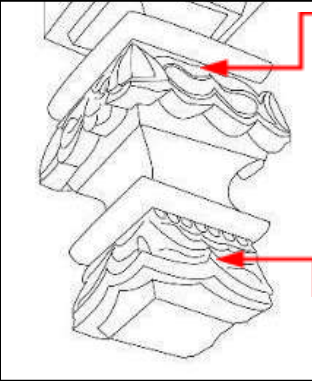


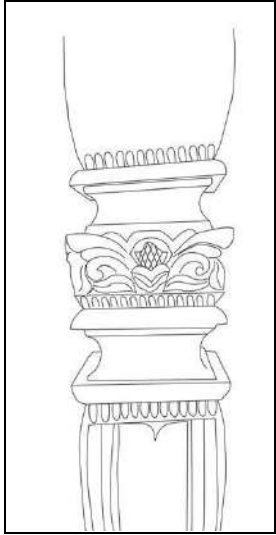
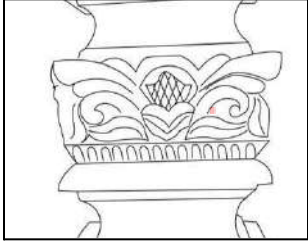



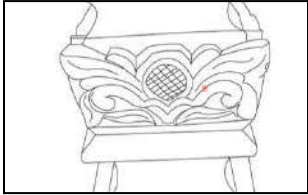


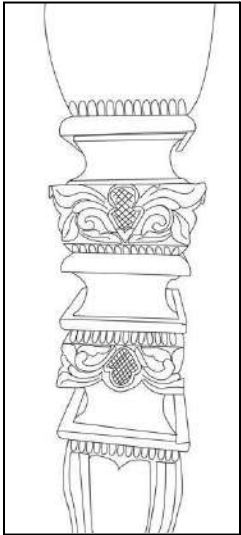
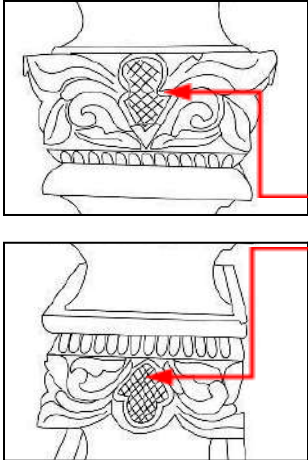

| | | | |
|---|---|--|---|
|  <p>D: Geometry motifs</p> |  |  |  <p>3) Circle</p> <p>4) Semi-circle</p> <p>5) Triangle</p> |
|---|---|--|---|

Table 3. Motifs on the *buah buton*(s) and poles in the *serambi* area

| Picture | Illustration | Illustration | Motif |
|---|--|--|---|
|  <p>E: Floral motifs</p> |  |  |  <p>1) <i>Sulur</i></p> <p>2) <i>Jantung pisang</i></p> |

| | | | |
|---|---|--|---|
|  <p>F: Floral motifs</p> |  |  |  <p>3) Bunga teratai (Source: https://www.flickr.com/photos/affan-basal-amah/2545366106)</p> |
|  <p>G: Floral motifs</p> |  |  |  <p>4) Bunga teratai (Source: https://www.flickr.com/photos/affan-basal-amah/2545366106)</p> |
|  <p>H: Floral motifs</p> |  |  |  <p>5) Bunga teratai (Source: https://www.flickr.com/photos/affan-basal-amah/2545366106)</p> |


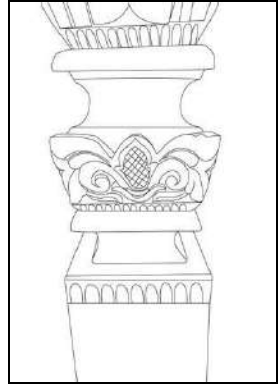
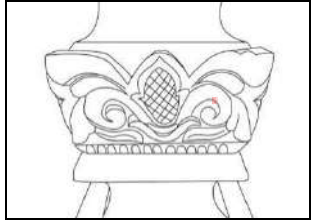


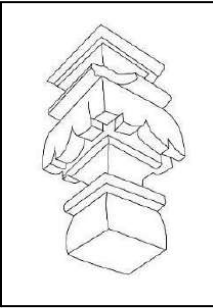
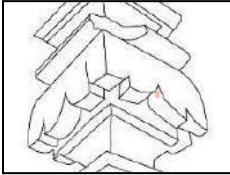


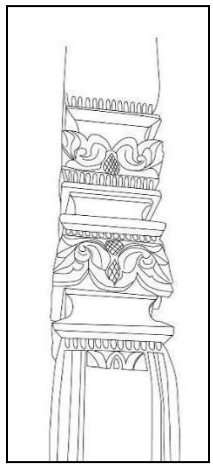
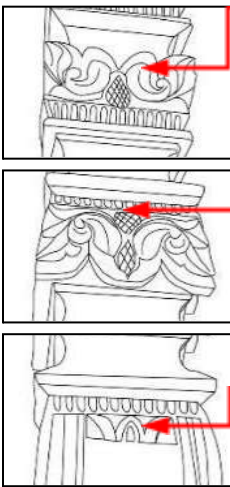



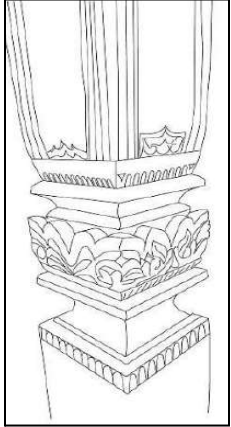
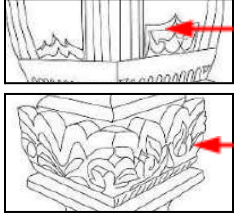


| | | | |
|---|---|--|---|
|  <p>I: Floral motifs</p> |  |  |  <p>6) Bunga teratai (Source: https://www.flickr.com/photos/affan-basal-amah/2545366106)</p> |
|---|---|--|---|

Table 4. Motifs on the *buah buton* and central pole in the *rumah ibu* area

| Picture | Illustration | Illustration | Motif |
|---|---|--|--|
|  <p>J: Floral motifs</p> |  |  |  <p>1) <i>Jantung pisang</i></p> |
|  <p>K: Floral motifs</p> |  |  |  <p>2) <i>Bunga teratai</i> (Source: https://www.flickr.com/photos/affan-basal-amah/2545366106)</p>  <p>3) <i>Bunga pecah tiga</i> (Source: https://www.istockphoto.com/id/foto/bunga-kelopak-tiga-gm13)</p> |

| | | | |
|---|---|--|---|
| | | | 12753431-40145962 6) |
|  <p>L: Floral motifs</p> |  |  |  <p>4) <i>Sulur</i></p>  <p>5) <i>Bayam peraksi</i> (Source: https://www.flickr.com/photos/ethnoflora/418984463)</p> |

DISCUSSION

Table 1's data indicate three significant motif categories: combination, geometry, and floral motifs. The primary locations for these themes were the fascia boards, gable end, *buah buton*, and various *tiang* (pillars). Simple motif designs, like geometric patterns and combinations, embellished the outside portions of the house, namely the fascia boards and gable ends, giving rise to discernible observations. On the other hand, the central pole, *buah buton*, and poles in the *serambi* and *rumah ibu* parts display more detailed patterns.

The first category is the floral, which was chiefly discovered in RWHK. The fascia board on the front porch, depicted in Figure 1, showcases a series of recurring motifs known as *potongan bunga*, characterised by stylised floral patterns or floral cutouts. This technique uses only a portion of the petal to fashion repeated designs on the fascia board. In the *serambi* area, it was discovered that the composition of the *tiang* (poles) and *buah buton* were decorated with distinctive floral motifs. Among these motifs found on the *buahbuton*, as seen in Figure 3, were the *sulur*, characterised by its twisting and intertwining foliage, vines, or tendrils, and the *jantung pisang*, inspired by the heart-shaped leaves of the banana plant. *Sulur* motifs exhibit flowing, organic forms, often as decorative elements in woodcarvings and architectural features.

On the other hand, the *jantung pisang* showcases the exterior shape of the plant as chosen and designed by the carver. Functioning as part of the *tanggam* system, a traditional construction technique in Malay architecture, the *buah buton*, depicted in Figure 3, is integral to the structural integrity of traditional Malay houses. Unlike modern construction methods relying on nails or fasteners, the *tanggam* system uses an interlocking structure created by matching pegs and holes to strengthen and stabilise the building. While the primary purpose of the *sulur* and *jantung pisang* motifs is aesthetic enhancement,

their presence on the *buah buton* not only beautifies and enriches the structure's overall appearance but also contributes to its stability and durability.

As illustrated in Table 4, the floral motifs known as *bunga teratai* or lotus flower, scientifically classified as belonging to the genus *Nelumbo nucifera* within the family Nelumbonaceae, are prominently highlighted on the poles near the entrance in the *serambi* area, as depicted in Figures 4 and 5. The motifs of the *bunga teratai* have been stylised and abstracted to integrate into the design of the poles. Despite the simplification of the carvings, the essential shapes remain intact. *Bunga teratai* holds cultural significance in Malay society and vernacular architecture. Beyond its visual appeal, the lotus flower symbolises resilience and the ability to thrive in adverse conditions. In a study conducted by Mohd Zaki Mahmud et al. (2021), the researchers explored Abdullah Mohamed's insights into the philosophy and mindset of the Malay, particularly concerning the cultural significance of the *bunga teratai*. They highlighted the lotus flower's significance as a symbol in Islamic teachings and the concept of divinity. Their findings suggest that the Malay people frequently integrate the symbol and metaphor of the lotus flower into various aspects of their culture, especially in traditional crafts, and even in the design of Malay houses and mosques' motif carvings. The notion of the lotus flower suggests that the origins of the Malay people are intertwined with the initial creation by Allah SWT, who brought everything into existence with the command "Be" (*Kun*), thus aligning with the divine will. Additionally, their research highlights the concept of Divinity and Universal Knowledge reflected in the symbolism of the *bunga teratai* in the Malay world.

The rumah ibu area, where the *tiang seri* is situated, is revered as the heart of the house. The motifs identified in this area include *bunga teratai* and *bunga pecah tiga* on the pole's upper part, and *sulur* and *bayam peraksi* motifs were observed on the lower part. The inspiration behind the *bunga pecah tiga*, or three broken flowers, is referred to as any flower that has three petals, mainly for aesthetic purposes. As for the *bayam peraksi*, it refers to a type of weed that is quite fragrant. Usually, *bayam peraksi* has been used as a secondary motif to complement the central or more pivotal flowers as the centrepiece. Nevertheless, it is being used to highlight the prevalence of its minor yet significant design for the *tiang seri*, as displayed in Table 5.

The second category is geometry. As depicted in Table 3, the geometry motifs identified include diamonds, ovals, circles, semi-circles, and triangles. The portrayal of geometrical carvings found on the gable end and fascia boards is mainly more straightforward to carve, and the patterns' repetition imparts a sense of balance and harmony. In addition to improving ventilation and letting natural light into the house, the geometry motifs on the gable end also create beautiful shadows in the daylight. Combination is the final category. Combining various motif types into a single design is known as the combination category; Table 2 provides instances of this, including hanging bats or *kelawar bergantung* and *potongan bunga*. Collectively, they create individual designs shaped onto the fascia board.

CONCLUSION

In summary, this study contributes to the conservation and comprehension of Malay cultural heritage by investigating woodcarving themes at Rumah Warisan Hajah Kundur. The study documents the wide range of patterns discovered at this heritage site, highlighting the prevalence of floral, geometric, and combination motifs that adorn various architectural elements of the house. These motifs not only enhance the visual appeal of the architecture but also encapsulate the nuanced cultural traditions and philosophical foundations of the Malay culture in Negeri Sembilan. The results underscore the significance of ongoing recording and conservation endeavours to protect this intangible cultural asset. It is imperative given that traditional behaviours and tangible representations of culture, such as Rumah Warisan Hajah Kundur and

any other traditional heritage Malay houses, remain at risk due to ongoing industrialization and deterioration.

Moreover, the study illuminates the mutually beneficial connection between artistic expression and cultural identity, emphasising the need for cultural sensitivity and awareness to preserve a legacy. This research highlights the broader significance of cultural preservation in Malaysia by concentrating on a specific historically significant site. It also has the potential to serve as a blueprint for similar studies in other areas. Future studies should build on this foundation by further exploring the many hidden treasures of Malay carving motifs in traditional houses throughout Negeri Sembilan. Researchers could employ interdisciplinary approaches, combining art history, anthropology, and architecture, to gain a comprehensive understanding of the cultural significance of these motifs and their role in shaping Malay identity. By continuing to document and study these traditions, we can honour the legacy of Malay woodcarving and contribute to the ongoing conversation about the importance of cultural heritage preservation in Malaysia and beyond.

ACKNOWLEDGMENT

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Aesthetic Packaging and Purchase Intention

Aifa Rozaini Mohd Radzol*

*Faculty of Business and Management, Universiti Teknologi MARA (UiTM),
Cawangan Kelantan, Machang Kelantan,
Malaysia*

Corresponding author

Email: aifarozainni@uitm.edu.my

Suchi Hassan*

*Faculty Of Hospitality, Tourism And Wellness, Universiti Malaysia Kelantan (UMK),
City Campus, Pengkalan Chepa, Kota Bharu Kelantan
Malaysia*

Email: suchi.h@umk.edu.my

Ida Fatimah Che Shalifullizam*

*Faculty Of Hospitality, Tourism And Wellness, Universiti Malaysia Kelantan (UMK),
City Campus, Pengkalan Chepa, Kota Bharu Kelantan
Malaysia*

Email: fatimah.cs@umk.edu.my

Nik Zirwatul Fatimah Ismail*

*Faculty Of Hospitality, Tourism And Wellness, Universiti Malaysia Kelantan (UMK),
City Campus, Pengkalan Chepa, Kota Bharu Kelantan
Malaysia*

Email: zirwatul.fi@umk.edu.my

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**These authors contributed equally to this study*

ABSTRACT

This research intends to investigate the elements of the aesthetic packaging of skincare products. The research proposed three independent variables namely colour, shape and visual weight, while purchase intention is adopted as a dependent variable. The respondents of this research are millennials who are the users of skincare and also have a purchasing power to choose the skincare products that are appealing to their eyes. The finding expects all the proposed hypotheses are supported and conclusion and recommendation are discussed at the end of the section.

Keywords: *Aesthetic packaging, Skincare, Colour, Shape, Visual weight, Purchase Intention*

INTRODUCTION

The term 'aesthetic' was borrowed from the aesthetic fields. The aesthetic field was first found in the 18th century by Alexander Gottlieb Baumgarten. He is referred to as the founder and scholar in aesthetic fields defined aesthetics as theory of beauty and theory of sensitive knowledge (Wessell, 1972). In the

20th century, the marketing scholars started to take interest in the aesthetic field and many marketing scholars started to explore the aesthetics field (Charters, 2006; Veryzer, 1995; Holbrook, 1980).

Aesthetics is defined as the art of creating reactions without words and communicating by way of sense (Newkirk & Crainer, 2003). Consumer appraise product's aesthetic through product designs include design proprietaries such as colour, shape, design, patterns, trademarks (Blijlevens et al., 2012). An aesthetic design may give response to the affective, cognitive and sensory of the receiver or a buyer (Wagner, 1999). This also aligns with the prior research by Bloch (1995) where an aesthetic product packing could generate psychological reactions which include cognitive and emotional contents. These psychological reactions also cause behavioural responses which indirectly lead to behavioural responses. Therefore, marketers use product aesthetics as a tool for competitive differentiation (Cox & Cox, 2002).

Today, the concept of aesthetic is not limited to the products only, marketers adopted the similar concepts to a packaging and it is called aesthetic packaging. Aesthetic packaging refers to the colour, size, shape, graphic images and the place of images, information available on packaging, graphic font, typeface and letters on the packaging, material of packaging and the technology of packaging which mostly have impact on the emotional aspect of products and making decision on product selection.

Aesthetic packaging may have contributed to the success of many brands and companies. Strategically, aesthetic packaging helps for pricing which helps to gain higher profits by gaining trust from the customer (Kristensen et al, 2012). Therefore, this research intends to investigate elements of aesthetic packaging in skincare products which could enhance the intention to purchase skincare products. Precisely, the research will explore the element of the aesthetic packaging which may induce the intention to purchase.

LITERATURE REVIEW

Packaging plays a key role in marketing of consumable products including aesthetic products. Through packaging, the consumer perceives the nature of the product through communication elements of the packaging. Thus, it is important for the designers or business development department to identify the current trends of the design that could appeal to their target market. To identify the current trends in the market is more challenging, as it requires dealing with the issue and problem in designing (i.e copyright, trademark and patent), market analysis and processes are necessary. Obviously, this target of designing the aesthetic packaging is to convince a potential customer to become interested in and buy the product (Creusen & Schoormans, 2005). The research adopted four variables namely colour, shape, patterns and visual weight of the aesthetic products to be tested with purchase intention. The next section discusses the details of the variable and the relationship with purchase intention.

The research is supported with a Theory of Buyer Behavior by Howard and Sheth (1969). The theory is adopted to explain the empirical phenomenon regarding the buying behaviour of individuals over a period of time. The theory attempts to explain the choice behaviour of the buyer; where the choice is made systematically, not random. Most importantly, buying behaviour is rational, in the sense that it is within the buyer's 'bounded rationality' (March & Simon, 1958).

The theory identifies the elements of the decision process, observes the changes, and shows how a combination of decision elements affects search processes and the incorporation of information from the buyer's commercial and social environment. The elements of the buyer choice decision are 1) a set of motives 2) alternatives courses of action 3) decision mediators – by which the motives are matched with the alternatives. Motives are seen as specific to a product class and reflect the underlying needs of the

buyer and the alternatives are the various choices that have the potential of satisfying the buyer's motives. Figure 1 below illustrate the elements of the theory.

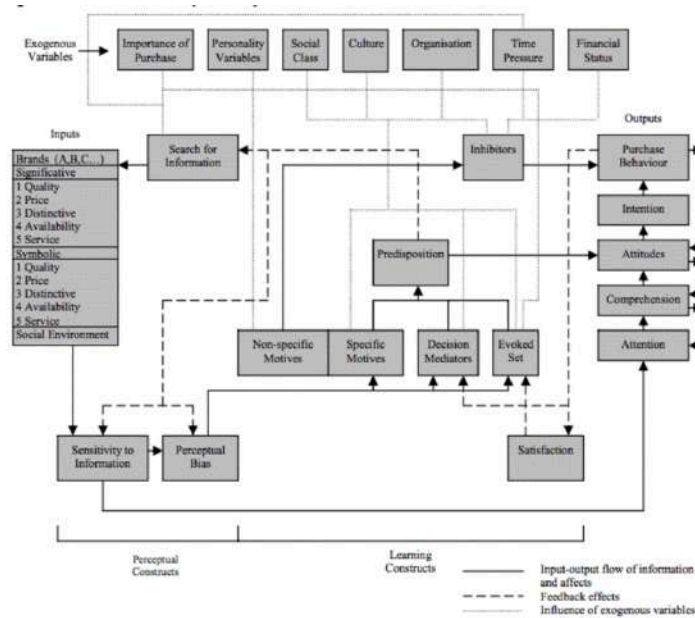


Figure 1. Theory of buyer behaviour
 (Source: Howard and Sheth, 1969)

Purchase Intention

Purchase intentions are referred to as a next planned decision to purchase or not to purchase a specific product in future (Yeo et al., 2015). Liat and Wuan (2014) states that, when an individual has the arrangement to purchase a specific item or service over a period of time, the purchase intention will arise. The intention to buy will be influenced by the conduct, the recognition of the product and the disposition (Keller, 2009).

The purchase intention of consumers has become an interesting area of study by marketing experts (Hosein, 2012) to examine shopper recognitions and procedures as well as to investigate customers' purchase intention (Javed et al., 2016). Correspondingly, Yeo et al. (2015) mentioned that customers' purchase intention is an important key factor for a company to gain a competitive edge in the marketplace. Furthermore, Chi (2013) found that consumers' purchase intention becomes a vital key to anticipate the buying behaviour that can be found through the advantages and value of procurement of a specific product or service. Past research stated that purchase intention is utilised to become the best apparatus when marketers attempt to investigate the buying process of consumers.

Colour

Colour is the most important element of packaging where different types of colour will affect the consumers to have a different view or opinion towards the packaging (Keller, 2009). Keller (2009) also stated that the colour of the packaging is an imperative component that will help the consumer to differentiate from other products with similar characteristics that are offered by competitors. Some of the researchers stated that the colour of packaging will influence the purchase intention of consumers when

consumers relate to the new styles of packaging for a new product that has a similar colour with the original product bundle (Ibojo & Olawepo, 2015).

Previous studies by Javed and Javed (2015) stated that making the right choice of colour for the packaging will have the power to attract the consumer's attention. However, the wrong choice of colour will result in a loss of interest by consumers toward the product. The colours that are used by the packaging all have their significance in appealing and stressing different moods (Ali et al., 2015). The study also determines that packaging colour of product induces the purchase intention of the customer, packaging colour can be remembered and packaging colour does bring competitive advantages to company with this convincing literature, the first hypothesis is developed as:

H1: There is a significant positive relationship between colour and purchase intention.

Shape

The packaging is defined as how big the item is and the appearance outline of the item (Silayoi & Speece, 2004). According to Ali et al., (2015) a study on packaging found that the shape of packaging will influence the purchase intention of consumers who prefer the design of packaging that is convenient. Consumers will be attracted with the outward appearance of packaging which is large but if the item inside the packaging is small or low in quantity, the customer will not have a repurchase intention towards the particular product again (Ali et al., 2015). Consumers feel the packaging of products in large sizes give them better value in contrast with product packaging that comes in small sizes (Ali et al., 2015). When the consumers cannot define the quality of the product by the appearance of the packaging, the packaging size will have a very strong impact towards the customers' purchase intention (Silayoi & Speece, 2004). According to research done by Agariya et. al. (2012), consumers will have an association with a particular product by seeing the outline shape of the packaging. With this convincing literature, the fourth hypothesis is developed as:

H2: There is a positive relationship between shape and purchase intention.

Visual Weight

Past research has shown that the weight of the object can transmit different meanings such as quality and expense (Lindstrom, 2006). For instance, perfume bottles, considered a luxury item, are mostly made of glass because the weight provides the customer with a sense of luxury that other materials, such as plastic, cannot provide (Caldwell & Flammia, 1991). Similarly, the research by Van Rompay et. al, (2014) also shows that excessively lightweight mobile phones might harm value perceptions and, consequently, lower price expectations.

Yang (2020) further states that the weight of an object can transmit different meanings for consumers Interestingly, a visually heavier product was expected to be more expensive. These findings highlighted that visual heaviness can be communicated through skincare packaging with the help of colour and health claim design to positively influence consumer intention. Previous research has shown that the weight of the object can transmit different meanings such as quality, and expense (Lindstrom, 2005; Van Rompay & Ludden, 2015). Moreover, the food of a heavier container was found to be more satiating than that in a lighter container, indicating that consumers' product experience can be influenced by the heaviness of the container or package (Piqueras-Fiszman & Spence, 2012). From the discussion above, the third hypothesis is formulated as below:

H3: There is a positive relationship between visual weight and purchase intention.

From the elaboration discussed in the above section, the study proposed a conceptual framework of the study as shown in Figure 2 below.

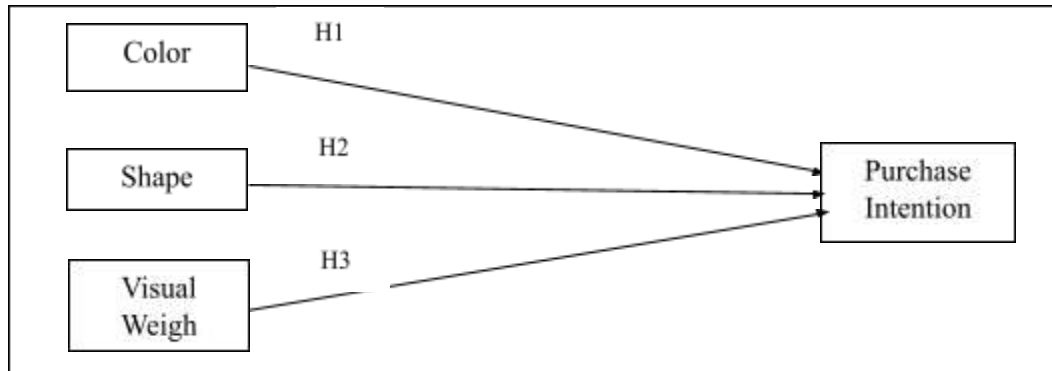


Figure 2. Conceptual framework

METHODOLOGY

The research is still at the infancy steps. More reviews from the past research were adopted. The research aims to call for the millennials to participate with the research. The development of the scale items and data analysis is still in progress. The next section will provide the conclusion and recommendation for the research.

CONCLUSION AND RECOMMENDATION

The main objective of this study is to investigate the impact of packaging on the customer purchase intention. This research will be very valuable for designers who prepare packaging for many industries. To attract the customer purchase intention with product packaging, the packaging industry must know about what the customers' needs and wants are to fulfil their requirements. This research will assist the packaging industry to determine the factors of packaging that can enhance the esthetic elements and could increase the customers' purchase intention.

In future, a bibliometric analysis will be referred to enhance the representability of the proposed conceptual framework above. A bibliometric analysis of aesthetic packaging of the cosmetic products is still in a progress of the development and a collaboration with different expertise is required to produce the manuscripts. A collaboration from art and design experts are required to provide more insightful ideas of the matters.

Underpinned by a Theory of Buyer Behavior (Howard & Sheth, 1969) a moderator and mediator will be introduced to a framework which may mimic the real situation of purchasing skincare products with an aesthetic packaging in the market. A consistent finding of the constructs will be adopted as a mediator of the framework. While, the inconsistent findings would be meaningful to be employed as a moderator of the framework, where this construct is expected to strengthen or weaken the relationship among the constructs within the framework.

Last but not least, the research would be more meaningful if by performing an aesthetic packaging comparison of preferences of various cultures among the six continents. This would be useful for the marketer to understand the market better which aligns with the contemporary marketing and modern consumer behaviour demand.

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