

Conceptual Zero Waste Fashion: Passive Subtle Communication to Drive Environmental Change

Purnama Esa Dora Tedjokoesoemo ^{1*}, Evania Yessica ^{2*}, Regina Margareta Handoyo ^{2*}

¹ Interior Design Department, Faculty of Humanities and Creative Industries, Petra Christian University, 60216, East Java, Indonesia

² Fashion Design and Textile Program, Faculty of Humanities and Creative Industries, Petra Christian University, 60216, East Java, Indonesia

Jl. Siwalankerto No.121-131, Siwalankerto, Kec. Wonocolo, Surabaya, Jawa Timur 60236

Email: esa@petra.ac.id

ABSTRACT

The fashion industry's adverse environmental impact, driven by excessive waste generation and resource depletion, calls for innovative approaches to reduce its ecological footprint. One promising solution is zero waste fashion, which aims to eliminate textile waste throughout the production process. Pattern design plays a crucial role in zero waste fashion, as it maximises material utilisation and minimises cutting waste. By employing innovative pattern-making techniques, such as tessellation, modularity, and cut-on-fold, designers can optimise fabric usage, eliminating excess scraps and minimising textile disposal. Effective communication strategies enable designers, manufacturers, and consumers to understand the importance of material and pattern selection in zero waste fashion. By emphasising the ecological impact of textile waste and showcasing alternative sustainable materials and innovative pattern-making techniques, creative communication can raise awareness and inspire action towards more sustainable practices. This research conducted in testing of different patterns available online as open source to find out the best combination for multi fabric use in design. This study aims to highlight the possibilities of communicating certain values in subtle non aggressive methods by using ready to wear fashion as its media. The result shows that these indirect communication strategies do deliver messages subtly and come in connection before correction.

Keywords: creative communication, zero waste fashion, fashion, subtle message

INTRODUCTION

Current fashion industry processes and the use of textile materials are unsustainable. Conventional design methods waste around 15% of the cloth used in the design and production of a cut and sew garment. Manufacturing is responsible for this waste since it is limited by what has previously been developed and pattern cut. The economic structures that drive fashion design and manufacturing provide no economic motivation to be worried about

waste. According to The Roundup (2023), more than 100 billion new clothing items are made each year. However, 87% of the clothing is discarded and ends up in landfills. Worldwide, 92 million metric tons of textile waste are generated.

Fast fashion is to blame for this textile waste. Fast fashion, which consists of affordable and widely available items of the moment, has altered the way people buy and dispose of apparel. Fast fashion has established a dominating business model by selling vast amounts of apparel at low prices, causing garment consumption to increase (Bick et al, 2018). Behind the cheap selling price, in fact there is a very high price that must be paid by the environment as a result of fast fashion. The fast fashion industry is responsible for around 10% of total carbon emissions in the world, and is even expected to increase to 50% in 2030. Clothing materials that are generally used in the fast fashion industry are synthetic fibres such as polyester. These materials are the main source because they are cheap to produce. Unfortunately, because of the use of this polyester, the fast fashion industry has become highly dependent on water. Large amounts of water are needed during the dyeing process to wash clothes. Globally, this industry consumes around 79 billion litres of water annually. Furthermore, wastewater from production that is not processed again can contaminate waters with toxins and heavy metals that are harmful to health (FKM UI, 2022).

One promising innovative approach to reduce ecological footprint and waste generated in fashion manufacturing is zero waste fashion (ZWF). It aims to eliminate textile waste throughout the production process, specifically in its pattern making stage. Pattern design plays a crucial role in zero waste fashion, as it maximises material utilisation and minimises cutting waste in target of less than 15% at the very least (Rissanen & McQuillan, 2016). In Indonesia, a growing number of people are becoming interested in sustainable fashion. According to the growth of numerous local brands carrying the concept of sustainable fashion, such as Sejauh Mata Memandang, Sukkha Citta, Pijak Bumi, and many others (Endrawati, 2022).

One of the common threads of brands that are generally engaged in environmentally conscious fashion is the stage of storytelling in their online media. This understanding is important to be able to provide narrative, added value, and a sense of buyer participation in campaigns carried out by related brands. It is also a way to let the message sink in and decrease the potential of instability in the potential market known as the missing piece syndrome, whereby one piece becomes very rare in the network, in this term the connection (Zhu, 2011). The storytelling may come offline or online, whether it is in their website or by actively engaging in promoting sustainable fashion through their Instagram posts. This research aimed to observe the organic method used in developing products and brands by one of the (Petra Christian University) PCU's Fashion Design and Textile final year project students. The study aims to deliver a narrative study of the relation between peer to peer

communication method as a co-creation option and delivery of ecological awareness through ZWF in its design development.

METHOD

This research is a descriptive explanation of the final stages of design thinking method from the main plot of multi fabric ready-to-wear clothing design carried out by the research team. This study observes and describes persuasive communication methods organically conducted between peers in both online and offline by designers in implementing the 6 stages of design thinking developed by IDEO (IDEO, n.d.). The reason for choosing this research method is to understand how a community or individual responds to certain issues (Gill, 2008), in this case clothing that has ecological value, namely zero waste fashion.

According to IDEO (n.d.), design thinking method may come in non linear process in practice, that commonly explained in these 6 steps:

1. Frame a Question: encourages the team to consider clients (for whom you are building a solution) and what they actually require.
2. Gather Inspiration: seeks inspiration by going out into the world and observing and understanding what people truly require.
3. Generate Ideas: This goal is to leverage the inspiration received to help push past the obvious and come up with new solutions to the stated problem.
4. Make Ideas Tangible: tries to create rough prototypes and determine what works and what doesn't.
5. Test to Learn: the goal is to test prototypes, collect feedback, and iterate.
6. Share the Story: Once we've found the proper solution, develop and share the story with your colleagues, clients, and customers.

This research is limited to observing the development of a new fashion local brand in applying ZWF as its statement, "Masa". Masa is a project developed as a final year project by a student and guided by 2 supervisors (research team) in a studio based learning environment. Studio based learning environment enables students to interact with one another outside of their formal consultation session. As the final year studio, students are not required to be present all the time. Therefore there will only be 5 samples of design students closely observed and involved in further FGD.

This research focused on the persuasive communication conducted among peers, or those provided as peers, during the 6 months period of design development. The methodology used in this qualitative research, divided according to each design thinking method, are:

| Design Thinking Method | Data Collection Methodology |
|-------------------------------|--|
| Frame a Question | <ul style="list-style-type: none"> ● Observation over the discussion among designers and supervisors. ● Peer to peer is optional. ● Output comparison to targeted class instructional design. |
| Gather Inspiration | <ul style="list-style-type: none"> ● Observation over the discussion among designers and supervisors. ● Peer to peer is optional. ● Output comparison to targeted class instructional design. |
| Generate Ideas | <ul style="list-style-type: none"> ● Observation over the discussion among designers and supervisors. ● Peer to peer is optional. ● Output comparison to targeted class instructional design. |
| Make Ideas Tangible | <ul style="list-style-type: none"> ● Observation over the discussion among designers, supervisors, peers. ● FGD with peers. Peers were limited to 5 people from the same batch of final project who are constantly available during the process. |
| Test to Learn | <ul style="list-style-type: none"> ● Visual analysis over reaction, engagement, and response given among peers and social media community, specifically Instagram. |
| Share the Story | <ul style="list-style-type: none"> ● Individual interview to the 5 peers. ● Respond given to the Masa administrator, who serves as the designer, after the final presentation. |

FINDINGS & DISCUSSION

Consumer communication influences cognitive, affective, and behavioural attitudes, as anticipated by consumer socialisation theory. Consumers develop consumption-related skills, attitudes in the marketplace, and information through the socialisation process (Asokan, 2020). To understand consumer's choices, a designer should not close themselves off from discussions and possible design revisions. One method that is applied in PCU design departments is studio based projects. Peer-to-peer (P2P) communication is a powerful multiplier of networking, due to its ability to exploit parallelism in a distributed way (Zhu, 2011).

This research focuses on the development process of Masa divided from each stage of design thinking. Masa is a brand new local sustainable fashion business that specialises in Zero Waste Fashion (ZWF). Masa uses an Instagram account, @masawear_id, as its main platform to socialise online, educate, and potentially sell in the future to allow it to reach a wider audience. Asokan (2020) stated that the potential customer intention has direct impact by electronic word-of-mouth and has indirect impact by different facets of trust and value co-creation.

During the design stages development, as part of the final project, Masa's designer was targeted to produce 5 ready to wear prototypes, branding set, and project report as its primary output. The secondary output was academic publications and presentation needs. The research finds that after the designer was able to meet and work alongside peers, her design output and variation increased in speed of production, variation, and sense of potential customer needs. The following table shows how each stage enables the designers to interact with different sets of people or community and progress of result it gave:

| DT Method | People/ Community to Interact | Output |
|---------------------|--|---|
| Frame a Question | Final project supervisors. | Problem statement, gap of knowledge, and unique selling point (USP). The outputs were in line as per target. |
| Gather Inspiration | Final project supervisors, individual pinterest browsing, individual ecological brand browsing. | Design sketches. The initial sketches come to face major adjustment as ZWF have different patterns and expectations. The outputs were in line as per target. |
| Generate Ideas | Final project supervisors. | Adjustment of design ideas into potential ZWF patterns. The outputs were in line as per target. |
| Make Ideas Tangible | Final project supervisors. P2P organic discussion and presentation during the development process. | Half scale dummy making, appreciation and design critics. The outputs exceeded the target. Minor variation given, such as colours and material pattern selection. |
| Test to Learn | P2P with studio peers. | Minor design adjustment, the allocation of the appropriate body shape to the design is increasingly defined. The outputs were in line as per target. However, creative secondary output occurred. |
| Share the Story | P2P with studio peers and Instagram community by utilising various IG features. | Design appreciation, critics, and market responses. The primary and secondary targets exceeded. |

The discussion between designer and the supervisor resulted in fruitful formal discussion. The result was in line with target output but only driven maximally when the design students are keen enough. However, the P2P conducted was making use of informal discussion and the FGD method. It was conducted organically and in the form of fun interactions among peers. The P2P improved designer's understanding on how each prototype will hug a different body shape differently, responses to material selection, it also helped to initiate secondary output of design to make use of leftover fabric cuts as ribbon.

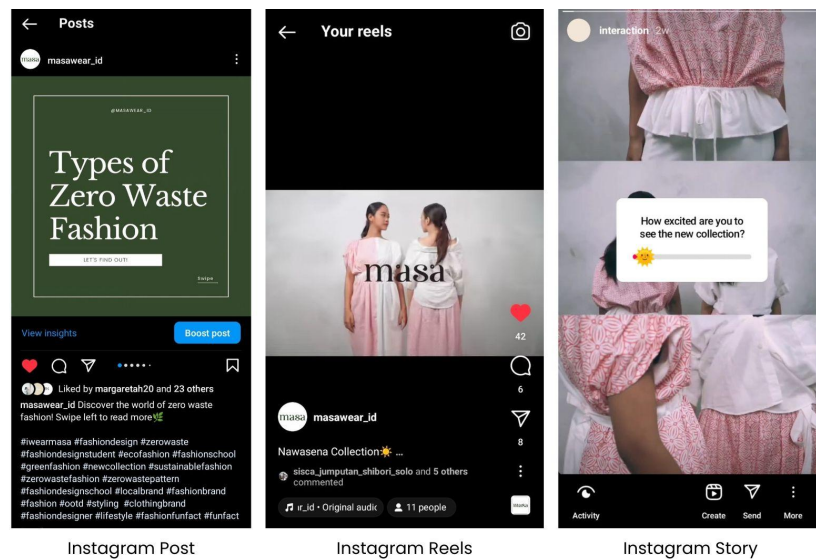
The initiative came from the peers as they were aware that Masa is made as an ecological brand. On the other hand, peers involved during the design development are more aware of ZWF and have a better understanding of challenges it had. They were also willingly and independently involved in Masa's communication strategy and campaign.



Figure 1. Designer's Interaction and Feedback Documented by Peers Independently

The P2P interaction also served as validation towards the prototype produced at an earlier stage, so that adjustments were possible to be made. For example, the neckline cut for the dress was a little bit high therefore at the second stage of prototype making, adjustment was made to lower the neckline. The prototype set was made available for a month in the studio to allow peers independently review, give feedback, and give them a try. This allows the designer to understand that loose cut and multi fabric used in this first collection have made a positioning and initial branding to Masa apart from the zero waste patterns it uses. These additional values will help in reaching a wider audience even those who may not engage in ecological issues.

In terms of the web platform, Masa only focuses on Instagram to share information, build interaction, and visualise the conceptual design. The designer, who also happened to be the IG administrator, uses numerous Instagram features to generate awareness about their products and ZWF. Instagram posts, Instagram reels, and Instagram Stories are among the features available, and they are complemented by well-written descriptions, relevant hashtags (#temanmasa), and music.



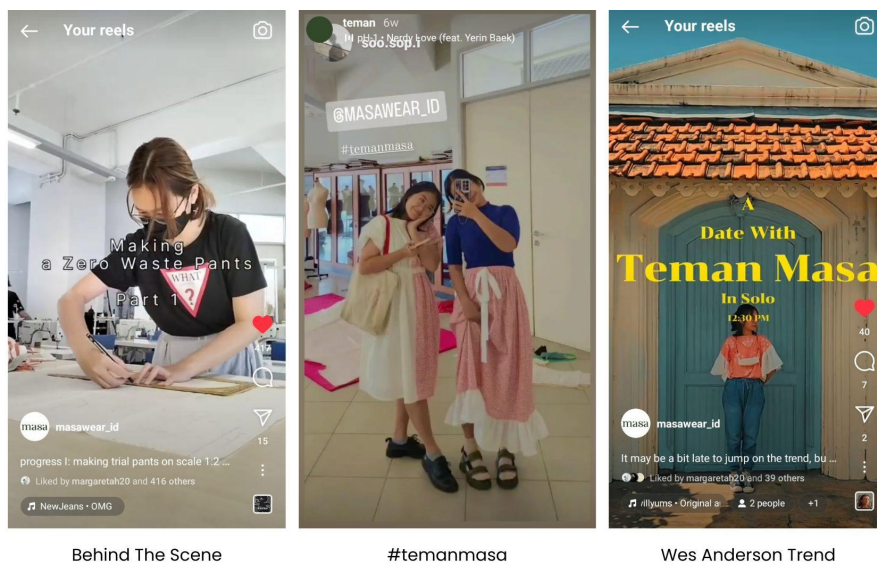
Instagram Post

Instagram Reels

Instagram Story

Figure 2. Instagram’s Feature Used Samples

Masa also generates a variety of material for Instagram, such as behind-the-scenes insights of the product-making process, and the design journey (from scratch until the final presentation at the moment this paper was written). The explanations for ZWF are presented in the form of infographics, which are listed in the caption. Content with the hashtag #temanmasa was generated to make Masa's Instagram even more engaging. Several micro social influencers were wearing Masa items and commenting about them on their personal accounts using the hashtag #temanmasa. The contents were then re-posted by the @masawear_id account. These efforts resulted in Masa successfully reaching 7,504 accounts between March 22, 2023 and June 19, 2023. The majority of viewers were between the ages of 18 and 24, with 83.3% identifying as female and 16.6% as male.



Behind The Scene

#temanmasa

Wes Anderson Trend

Figure 3. Instagram content at @masawear_id

CONCLUSION

Conventional fashion design methods are responsible for waste generated during their manufacturing process. One promising innovative approach to reduce ecological footprint and waste generated in fashion manufacturing is zero waste fashion (ZWF). It aims to eliminate textile waste throughout the production process, specifically in its pattern making stage. In Indonesia, a growing number of people are becoming interested in sustainable fashion. One of the common threads of brands that are generally engaged in environmentally conscious fashion is the stage of storytelling in their online media. This understanding is important to be able to provide narrative, added value, and a sense of buyer participation in campaigns carried out by related brands.

Masa is a brand new local sustainable fashion business that specialises in Zero Waste Fashion (ZWF). Masa is a project developed as a final year project by using a design thinking method inspired by IDEO. The development was conducted in a studio based learning environment to allow peer to peer (P2P) interaction. The discussion between designer and the supervisor resulted in fruitful formal discussion. The result was in line with target output but only driven maximally when the design students are keen enough. However, the P2P conducted organically creates better connections to deliver correction. It improved designer's understanding on how each prototype will hug a different body shape differently, responses to material selection, it also helped to initiate secondary output of design to make use of any leftover fabric cuts. On the other hand, peers involved during the design development were relatively more aware of ZWF and independently involved in Masa's communication strategy and campaign.

REFERENCES

- Asokan, D. (2020). Impact of trust aspects and value co-creation as mediation on purchase intention in social networking context. *American Journal of Social Sciences and Humanities*, 5(2), 221–229. <https://doi.org/10.20448/801.52.221.229>
- Bernadette, S., Permatasari, B. Y., & Roennfeld, S. A. (2022). Analisis Terhadap Kampanye Persuasif Zero Waste Indonesia Terhadap Pemahaman Ideologis Komunitas #Tukar Baju Di Instagram, 3(4), 325–335. <http://thejournalish.com/ojs/index.php/thejournalish/index>
- Bick, R., Halsey, E., & Ekenga, C. C. (2018). The global environmental injustice of fast fashion. *Environmental Health*, 17(1), 1–4. <https://doi.org/10.1186/s12940-018-0433-7>
- Crumbie, A. (2023, June 29). What is fast fashion and why is it a problem?. *Ethical Consumer*. <https://www.ethicalconsumer.org/fashion-clothing/what-fast-fashion-why-it-problem>

- ElShishtawy, N., Sinha, P., & Bennell, J. A. (2021). A comparative review of zero-waste fashion design thinking and operational research on cutting and packing optimization. *International Journal of Fashion Design, Technology and Education*, 15(2), 187–199. <https://doi.org/10.1080/17543266.2021.1990416>
- Endrawati, E. (2022, July 27). 12 Brand Fashion Lokal Berkonsep Ramah Lingkungan. *IDN Times*.
<https://www.idntimes.com/life/diy/ema-endrawati/brand-fashion-lokal-berkonsep-ramah-lingkungan-clc2?page=all>
- Fakultas Kesehatan Masyarakat (FKM) Universitas Indonesia (UI). (2022, March 25). Fast fashion: Tren mode yang menjadi bumerang terhadap lingkungan. *Envihsa FKM UI 2023*.
<https://envihsa.fkm.ui.ac.id/2022/03/25/fast-fashion-tren-mode-yang-menjadi-bumerang-terhadap-lingkungan/>
- Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: Interviews and focus groups. *British Dental Journal*, 204(6), 291–295. <https://doi.org/10.1038/bdj.2008.192>
- IDEO. (n.d.). Design thinking. IDEO U. <https://www.ideo.com/pages/design-thinking>
- Rissanen, T. & MacQuillan, H. (2016). *Zero Waste Fashion Design*. Fairchild's Books. DOI: 10.5040/9781474222297.ch-004
- Zhu, J., & Hajek, B. (2011). Stability of a peer-to-peer communication system. *Proceedings of the 30th Annual ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing*, 321–330. <https://doi.org/10.1145/1993806.1993867>