International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 6 Issue 17 (June 2024) PP. 181-188
DOI 10.35631/IJIREV.617014

INTERNATIONAL JOURNAL OF INNOVATION AND INDUSTRIAL REVOLUTION (IJIREV)
www.ijirev.com

DISMANTLING WASTED KNITWEAR INTO A REUSABLE MATERIAL TO PREVENT WASTEFULNESS IN ISLAM

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Article Info:

Article history:
Received date: 18.04.2024
Revised date: 13.05.2024
Accepted date: 15.06.2024
Published date: 30.06.2024

To cite this document:

Ixora, W. N., Saidan, S., Saidan, H., & Zakaria, H. (2024). Dismantling Wasted Knitwear into a Reusable Material to Prevent Wastefulness in Islam. *International Journal of Innovation and Industrial Revolution, 6* (17), 181-188.

DOI: 10.35631/ IJIREV.617014

Abstract:

In the Islamic faith, there is an emphasis on the importance of avoiding wastefulness. According to Salau (2020), Muslims are encouraged to be mindful of their consumption and use resources responsibly, discouraging excessive wastefulness known as "*israf*." The act of recycling and repurposing materials is seen as positive and aligns with this principle. In Malaysia, there is a growing issue of textile waste. According to (Khalid, 2021) Approximately 195,300 tons of fabric waste are discarded in the country, accounting for 6.3% of the total 3.1 million tons of solid waste that ends up in landfills. The abundance of clothing in thrift stores is a consequence of the fast fashion industry's rapid production, resulting in lower quality and cheaper prices. To address this problem, a research innovation has identified discarded winter knitwear as a viable material and developed a successful process to convert it into reusable material. This innovation aims to create new products from transformed knitwear, thereby helping consumers reduce textile waste in landfills by providing them with reusable recycled material.

Keywords:

Upcycle, Sustainable, Reusable Material, Knitwear, Dismantling

Introduction

In Malaysia, the advent of fast fashion has generated a wasteful shopping habit, resulting in around 195,300 metric tonnes of fabric trash, accounting for approximately 6.3% of the total 3.1 million metric tonnes of solid garbage filling landfills (Chu, 2019). Trends in fashion

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change quickly, and the desire to purchase the current style can result in many products having a short existence and being discarded. Given that 73% of clothing ends up in landfills and fewer than 1% is recycled into new clothes, there are huge costs associated with landfilling clothing, both in terms of precious resources and economics (Moorhouse, 2020), fast fashion manufacturers inexpensive, disposable apparel at a quick speed, with several new collections released each year, leaving customers perpetually out of date and driving them to buy new pairs of ready-made clothing. According to YouGov employees (2017), Malaysians discarded 27% of their apparel after wearing it, owing to 37% of millennials acquiring at least half of their wardrobe in the previous 12 months.

Textile waste is causing an environmental catastrophe. Clothing composed mostly of natural plant- based fabrics such as silk, linen, and cotton, according to the Conscious Club (2019), can act as food waste if buried in a landfill. Nevertheless, unlike plant-based materials, most old, unwanted clothes cannot be composted and utilized as a food source for the soil since synthetic fibres account for 65% of all fibres used in the fashion industry (Charpail, 2017). Most clothing nowadays has been subjected to artificial methods like bleaching, chemical dyeing, printing, and permanent bathing, resulting in water pollution that is damaging to aquatic life and the health of millions of people who live along riverbanks (Charpail, 2017).

With the increasing quantity of textile waste in Malaysia, the presence of donation boxes and local second-hand stores provides customers with a fair opportunity to purchase unwanted items, keeping them from collecting as waste goods and unnecessarily adding to the landfill. Yet, sending old clothing to local donation bins and second-hand stores might generate complications. According to Tan Cheng Li (2015), most of the clothing received by the local sorting centre arrived in huge mixed bundles of different items such as dresses, children's t-shirts, shirts, blouses, coats, sweaters, jeans, baseball caps, bed sheets, curtains, shoes, handbags, belts, and soft toys from first-world nations like Japan, Australia, and America.

Unlike jeans and t-shirts, which may be cheaply supplied locally, most winter gear, such as knitwear, acrylic sweaters, woollens and jackets, is in short supply in Malaysia. As a result, this type of winter apparel is shipped to India, where it is shredded to extract fibres for use in products such as blankets and carpet underlay (Li, 2015). The goal of this study is to identify abandoned knitwear and unravel it into a reusable component using an efficient unravelling approach. The goal is to recycle the materials into items like bags, masks, indoor shoes, carpets, and decorations that may be marketed locally or globally. The procedure may also be taught to other developing countries to address the similar challenges of wasted and abundant resources.

Literature Review

Sustainability in Islam

Within Islam, there is a strong emphasis on advocating sustainable practices and reducing waste, driven by the principles of environmental guardianship, responsible consumption, and ethical conduct (Abdelhamid, 2021). Islamic teachings underscore the significance of safeguarding and nurturing the environment as a trust from Allah (S.W.T) and recognizing the interconnectedness of all living beings.

Islam instructs that humans are stewards (Khalifahs) of the Earth, entrusted with the duty of upholding the balance and harmony of the natural world. The Quran, in Surah Al-A'raf (7:31)

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(Shirazi, Sayyid Abdul Husayn Dastghaib, 2017), states, "And when He made you successors (Khalifahs) after the people of Noah and increased you in stature extensively. So, remember the favors of Allah that you might succeed."

Muslims are encouraged to utilize resources judiciously, shun extravagance, and reduce wastage (Abdelhamid, 2021). This principle extends to various aspects of life, including clothing and textiles. The Quran, in Surah Al-A'raf (7:26) (Shirazi, Sayyid Abdul Husayn Dastghaib, 2017), mentions, "O children of Adam, we have bestowed upon you clothing to conceal your private parts and as adornment. But the clothing of piety – that is best." By endorsing sustainable practices, Muslims can play a role in preserving Earth's resources and mitigating environmental harm. This includes finding innovative ways to reuse and repurpose items, such as converting used knitwear into reusable materials, rather than discarding them as waste.

The concept of sustainability resonates with Islamic values of moderation (I'tidal). Islam promotes moderation and discourages excess in all aspects of life, including consumption (Abdelhamid, 2021). The Quran, in Surah Al-A'raf (7:31) (Shirazi, Sayyid Abdul Husayn Dastghaib, 2017), advises, "O children of Adam! Take your adornment at every masjid (place of worship) and eat and drink but be not excessive. Indeed, He likes not those who commit excess."

Islam also encourages the avoidance of extravagance (*Israf*) and seeking lawful and beneficial provisions (Halal). Israf in Islam refers to wastefulness and extravagance, urging Muslims to use resources wisely and steer clear of excessive consumption (Abdelhamid, 2021). The Quran cautions in Surah Al-A'raf (7:31), "Eat and drink, but waste not by extravagance. Verily, He likes not Al-Musrifun (those who waste by extravagance)." This encourages Muslims to be mindful of their consumption habits, prioritize quality over quantity, and find creative means to prolong the lifespan of products through reuse or repurposing.

Thrift Stores

A thrift store is a retail establishment that offers a diverse selection of pre-owned items, acquired through donations from the local community, imports from economically disadvantaged nations, or surplus inventory from the fast fashion industry, often in various conditions (Brooks, 2019). Typically, products found in these local thrift shops are significantly more affordable than their original retail prices, and occasionally, branded items can be purchased for a fraction of their actual cost (Brooks, 2019). Buying second-hand clothing that is still in usable condition not only reduces landfill waste but also imparts the value of clothing as something passed down through generations (McDonald, 2017). On November 4th, 2017, the researcher visited a local thrift store called Jalan Jalan Japan, which sources its merchandise from Japan for recycling materials, as depicted in Figure 1.0. This store is situated approximately 11.2 kilometers away from UITM Shah Alam in Subang Jaya, Selangor.

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Figure 1: The Local Thrift Shop In Subang Jaya, Selangor

Varieties of Pre-Owned Winter Clothing Options Found in a Nearby Thrift Store

The local thrift shop had a diverse selection of winter clothing items. Many of these winter garments are both reusable and affordable, making them ideal candidates for recycling as sustainable materials (Watson, 2015). A cardigan, which is a knitted vest or sweater with a front-button fastening (Watson, 2015), is particularly versatile. Its buttoned front allows it to be worn either closed for warmth or open, serving as an alternative to a jacket and facilitating the transition from indoor to outdoor wear. Depending on the material used, cardigans can be suitable for various seasons (Watson, Types of Winter Clothing, 2022).

On the other hand, a down jacket is insulated with the soft, warm feathers of ducks or geese, creating tiny air pockets that trap heat and keep the wearer warm (Watson, Types of Winter Clothing, 2015; Watson, Types of Winter Clothing, 2022). An overcoat is a heavy coat typically worn over a suit or intermediate layer jacket. It usually extends from slightly above the knee to ankle-length and features either a double or single-breasted design with a collar (Watson, Types of Winter Clothing, 2022).

Sweaters, designed to cover the torso and upper body, can be called "jumpers" in British English, while in American English, they may also be referred to as "pullovers." These garments are worn by both adults and children, typically with a shirt, blouse, or t-shirt that fits snugly against the skin. Although traditionally knitted with wool, modern sweaters can incorporate a blend of synthetic fibres and cotton (Icewear, 2021).

Clothing Layering for Winter Attire

In the winter months, a practical method for protecting individuals from chilly weather is to don several layers of clothing that can be readily adapted based on the prevailing weather conditions (KARR, 2022). The concept of a three-tiered layering system is a fundamental technique for mixing different pieces of clothing to guarantee people's well-being when engaged in outdoor activities (Watson, 2022).

The first layer, referred to as the base layer, is the one in direct contact with the skin and has two key functions: controlling body temperature and removing moisture from the skin to keep the body temperature at an ideal level (KARR, 2022). Cotton is not a suitable option for the base layer because it tends to absorb moisture, whereas synthetic materials like polyester and

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nylon, as well as natural materials such as merino wool and silk, are better choices for this layer (Watson, 2022).

The intermediate layer serves as a form of insulation, preserving the body's generated heat, and its ability to trap warmth relies on the selection of materials such as fleece, wool, and fur (ymcaPony, 2016). Increasing the thickness of this intermediate layer can substantially boost insulation and the retention of body heat (KARR, 2022).

The outer layer acts as a protective shell against wind, rain, and snow. Most outer layers, such as jackets and topcoats, are designed to allow a modest amount of perspiration to escape and feature a durable water-repellent finish that causes water to roll off the fabric (Icewear, 2021). This outer shell plays a vital role in preventing inclement weather, strong winds, and watery snow from penetrating the inner layers of winter attire (ymcaPony, 2016).

Winter Wear Fabric Types

Material combinations involve pairing natural materials such as wool or cotton with synthetic fabrics like polyester to manage costs and create diverse clothing items (Icewear, 2021). While blended fabrics, in general, may not offer the same level of warmth as 100% wool, they can provide superior insulation compared to cotton (Icewear, 2021). Wool, known for its breathability, possesses the unique ability to absorb and release moisture from the surrounding environment, generating ample heat to prevent condensation within structural spaces by maintaining an optimal level of moisture (Attireclub, 2014). Wool fibres naturally contribute to stabilizing and insulating body heat, effectively retaining the body's natural warmth.

Methodology

This study employs semi-structured interview inquiries and experimental methods to collect the necessary data and fulfil the research objective. The data encompass an analysis of discussions held with the manager and proprietor of the nearby thrift store, focusing on the materials accessible within the thrift store.

Semi-Structured Interviews

The researcher conducted multiple interviews with the proprietors or managers of five local thrift stores situated in the Klang Valley region. The researcher had prepared and committed to memory a set of semi-structured interview questions for the purpose of engaging with the interviewees. This approach served to clarify the subject matter and instil confidence in the interviewees, enabling them to openly discuss topics of potential sensitivity. The objective was to create an environment where they felt at ease addressing matters that might be regarded as confidential within their business operations. Certain questions explored during the interviews pertained to internal business affairs, necessitating discretion. The data gathered through these interviews will be used exclusively for the study's completion, with any superfluous or sensitive information obtained from the respondents treated as confidential and not disclosed.

Research Tool: Experimental Approach

Various effective techniques exist for transforming knitted winter wear into reusable recycled materials. To explore multiple methods of unravelling winter knitwear, several winter garments will undergo testing. The researcher initiated the experiment by gaining a comprehensive understanding of clothing patterns, fabric compositions, and various types of clothing fastenings, all with the goal of salvaging each strand of yarn. For the deconstruction process,

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specialized embroidery scissors were employed to delicately remove clothing fasteners, tags, and seams from the garments, effectively dividing the knitwear into several pieces of knitted fabric. As depicted in Figure 2.0, the sweater was meticulously disassembled, with the primary knitted source identified and the yarn extracted row by row, subsequently wound into a ball to measure its length and facilitate future use.

The process of disassembling discarded knitwear and repurposing it into reusable materials represents an environmentally conscious strategy for waste reduction and the sustainable utilization of textile resources. Commencing this undertaking necessitates the assembly of fundamental tools: the target knitwear article awaiting deconstruction, a pair of sharp scissors, and optionally, a seam ripper for precision. A meticulous examination of the knitwear item is the initial step, aimed at comprehending its inherent structure and pinpointing the seams responsible for its cohesion. Typically, these seams are situated at cardinal locations, including the sides, shoulders, and sleeves. Subsequently, the practitioner is presented with two courses of action: the judicious utilization of the seam ripper to delicately dismantle the stitches along these seams, or alternatively, the careful excision of the fabric along the pre-existing stitching lines. It is imperative to exercise caution during this phase to prevent inadvertent damage to pivotal components or decorative embellishments.

After successful disassembly, the components, such as the front and back panels, sleeves, and collar, ought to be meticulously segregated. Moreover, any buttons, zippers, or ornamental elements warrant removal for potential future application. A thorough appraisal of the yarn's condition is paramount; if found in optimal shape, it can be repurposed without further ado, but if it appears tangled or impaired, a deliberate unravelling process is essential to salvage usable yarn. During this unravelling endeavour, meticulousness is the watchword to evade tangling or inadvertent breakage of the yarn. Lastly, a diligent cleaning regimen should be observed for the reclaimed components, conforming to the prescribed care guidelines. Subsequently, these salvaged materials ought to be stowed securely, poised for their next incarnation in crafting projects. This systematic approach not only imparts renewed utility to the materials but also underscores their role in the broader initiative to curtail textile waste.

Figure 2: Deconstructing sweater

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Project Outcomes

The researcher found out that most winter knitwear regarding the type of material can be salvaged throughout the experiment. Figure 3.0 below shows five balls of wool yarn that have been dismantled and the quality of the yarn is in good condition to be reused.

Figure 3: Wool Yarn Ball

Conclusion

The objective of this study has been to ascertain the viability of repurposing discarded, preloved winter knitwear as a sustainable resource and to outline a proficient technique for unravelling such garments. This endeavour carries significant implications for adherents of Islamic principles, particularly the stewardship of the environment, as it aligns with the ethos of responsible resource management. By presenting an enhanced approach for disassembling woven textiles, this research contributes to the broader objective of mitigating textile waste that accumulates in landfills. Consequently, this methodology allows for the transformation of these reclaimed materials into versatile commodities like bags, masks, indoor slippers, or the creation of innovative winter knitwear designs. This serves a dual purpose: not only does it decrease the environmental burden, but it also offers opportunities for economic sustainability by reintroducing these reimagined products to regions with winter seasons. In this way, the study underscores the importance of Islamic principles in fostering responsible consumption and environmental preservation, while also promoting economic prospects through sustainable practices.

Acknowledgements

Our heartfelt appreciation goes out to all those who made invaluable contributions to the successful realization of this research endeavour. This study was conducted meticulously under the auspices of the College of Creative Arts at Universiti Teknologi MARA. We owe a deep debt of gratitude to the university for its unwavering support, which included the provision of essential facilities, cutting-edge equipment, and invaluable expertise. Furthermore, we would like to convey our profound gratitude to the dedicated members of the KPSK research initiative group, whose unwavering support played a crucial role in the seamless execution of this research project. Their collaborative efforts were instrumental in achieving our research objectives.

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IJIREV
EISSN: 2637-0972
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