

# Minimalist Design Concepts as a Holistic Educational Approach in Sustainable Packaging Design Methodology

Ahmed Mohamed Attia Ismail \*

Instructor - October University for Modern Sciences and Arts

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## KEYWORDS:

Minimalist, Sustainability,  
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## ABSTRACT:

This study discusses applying minimalist design principles to sustainable packaging design education. The minimalist design concept refers to a design approach that focuses on simplicity, functionality, and efficiency. This concept involves reducing unnecessary elements and focusing on the essential components of the design, with an emphasis on achieving the desired functionality with the fewest materials and elements possible.

Therefore, the research aims to integrate minimalist design ideas into sustainable package design curriculums through content integration, collaboration, practical learning, and teaching sustainable manufacturing techniques and materials, while also assessing the benefits of minimalist design in sustainable packaging, including cost reductions, material saving, and time savings.

The benefits of incorporating minimalist design principles include cost reduction, material reduction, saving time, and energy reduction. The study investigates the influence of basic design education on students' comprehension of sustainable practices and long-term behavior, analyzes the benefits of incorporating design aspects into sustainable packaging, and suggests ways for implementation.

Minimalist design principles can be integrated into packaging design education to promote sustainable practices. By emphasizing simplicity, functionality, and efficiency, educators can teach students how to create visually appealing and sustainable packaging designs. However, challenges like balancing simplicity and functionality, meeting barrier requirements, and addressing consumer perception must be addressed. By providing real-world examples and encouraging creativity, educators can help students overcome these challenges and effectively integrate minimalist design principles into their designs. By incorporating these principles into courses, educators can improve students' understanding of design aspects and cultivate long-term practices for a brighter future.

## 1- Introduction:

In recent years, there has been a growing interest in the use of minimalist design principles as a holistic educational approach to sustainable packaging design methodology. This research is significant for its exploration of the incorporation of minimalist design principles into the teaching of sustainable packaging, which in turn encourages the reduction of environmental effects and the development of creative design strategies. The target is to inspire student creativity and provide insight into the benefits, difficulties, and real-world uses of minimalist design by introducing the concepts of minimalist design into the classroom. The research also explores the possible advantages of cost, material, and energy savings that can be realized through this approach, as well as the effect that minimalist design education has on students' comprehension of sustainable practices and design aspects.

Therefore, The research aims to integrate minimalist design ideas into sustainable package design curriculums through content integration, collaboration, practical learning, and teaching sustainable manufacturing techniques and materials, while also assessing the benefits of minimalist design in sustainable packaging, including cost reductions, material and time savings.

This study uses descriptive analysis to examine the advantages of incorporating minimalist design principles into packaging design education, focusing on sustainability. It uses practical case studies to demonstrate how these principles can promote sustainable practices and encourage creativity among students.

Multiple challenges can arise when incorporating minimalist design into sustainable packaging design, such as:

- Finding the correct combination of minimalism and practicality while maintaining the packaging's protection, usefulness, and beauty (Xiong, Xue, and Xiaotong Zhan., 2021).
- Getting the right blend of simplicity and functionality (associatedlp.com, 2021) While this might result in a clean and visually appealing design, it can also make it harder to express critical product information. Quick response (QR) solved this issue by allowing customers to know and learn a lot of information about the product by scanning (QR) and exploring all available information on a website, smartphone, or virtual reality.
- Ensuring that the simple design satisfies all essential protection standards and preserves the goods adequately. If the packaging is too constructed, this may require down-gauging the packing thickness or lowering the number of layers that make up the packaging material (associatedlp.com, 2021).
- Clearly and effectively communicating the brand identity, value proposition, and product information without depending on unnecessary images and text (Spence, Charles, and George Van Doorn., 2022).
- In large and various markets, it is critical to stand out from the competition and appeal to the target audience. (Ton, L. A. N., Smith, R. K., & Sevilla, J., 2023).
- Choosing the best suitable materials, colors, typefaces, and forms that express the minimalist concept and

brand features (Bao, Jianqiang., 2022).

- Create a distinct and memorable minimalist packaging design to avoid the appearance of being cheap, uninteresting, or unoriginal because some customers may connect minimalist packaging design with lesser quality or believe it is less aesthetically appealing than more maximalist packaging designs (Garaszczuk, Michael., 2015).

## 2- Background

Minimalism, as a design approach, emphasizes simplicity, efficiency, and the elimination of unnecessary elements. When applied to sustainable packaging design, minimalism can yield various positive outcomes in terms of cost, materials, time, and energy (shown in Fig. 1)(Sastre, Ricardo, Istefani, and Marcia, 2022).

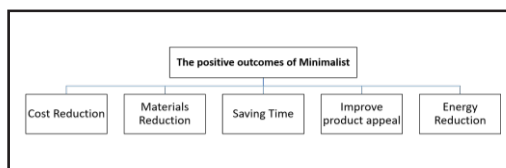


Figure 1- The positive outcomes of Minimalist

### 2-1 Cost Reduction

Minimalist packaging design can contribute to cost reduction by minimizing the use of materials, streamlining production processes, reducing energy for production and shipping, and reducing packaging waste. By using fewer materials and simplifying design elements, packaging production costs can be lowered, resulting in cost savings for businesses (Smith et al., 2015).

### 2-2 Materials Reduction

Minimalism promotes using fewer materials while maintaining functionality and durability. By eliminating excess components and

focusing on essential features, packaging designers can reduce overall material consumption. This reduction in materials not only helps conserve natural resources but also reduces the costs associated with material sourcing, production, and waste management (Rogers et al., 2018).

### 2-3 Saving the Time

The simplicity and efficiency inherent in minimalist packaging design can also lead to saving time in various stages of the packaging lifecycle. With fewer design elements and streamlined production processes, packaging manufacturing and assembly can be expedited, resulting in reduced production time, facilitating faster packaging line operations, and improving overall efficiency and productivity (Velasquez et al., 2020).

### 2-4 Improve product appeal

It may improve product appeal and brand identity by adopting simple, attractive, and useful designs that express the personality and value of the product.

### 2-5 Energy Reduction

Minimalist design methodology offers a promising avenue for reducing energy consumption in the packaging industry to achieve sustainability; various strategies can be employed to achieve this goal. Firstly, the energy-intensive processes involved in material extraction, processing, and production can be reduced by using fewer materials. Secondly, Minimalist packaging solutions that are compact and lightweight consume less energy for transit and storage (Hansen et al., 2019). Thirdly, the promotion of environmentally friendly materials, such as biodegradable or recycled

choices, reduces the energy necessary for the production and transportation of packaging materials (Nguyen, 2021). Additionally, Minimalist design promotes sustainable consumer behavior by encouraging him to reduce packing sizes, which reduces energy requirements for transportation energy and storage spaces (M. C. York, 2016). Furthermore, minimalist-inspired forms and production operations need less energy throughout manufacturing process chains (Veryzer, 2005). Emphasizing durability and longevity, decreasing the need for frequent product replacement and the energy consumption associated with it.

Lastly, Visual designs with white backgrounds and limited use of hazardous inks save energy by needing less time to change printing equipment and help to preserve the environment (Sevaldson, 2010).

By embracing the principles of minimalism, sustainable packaging design can achieve cost reduction, material reduction, saving time, and energy reduction. These positive outcomes align with the goals of sustainable development and can have significant environmental and economic benefits for businesses and society as a whole.

### 3- Suggested Strategies to Apply in the Higher Education

In higher education, minimalist principles can be an effective methodology to teach sustainable design techniques. Educators may take a holistic approach to sustainable package design by:

3-1 Inform students to consider a product's complete lifecycle. This can include employing simple, practical, and environmentally friendly aesthetic and structural designs that decrease waste and encourage responsible consumer behavior (Verghese, Lewis, & Lockrey, 2012).

3-2 Teach students the value of design simplicity and utility (Boks & Stevels, 2014).

3-3 By concentrating on the fundamental parts of a design and removing extraneous aesthetic features, students will be able to produce designs that are both visually attractive and useful (Garaszczuk, Michael., 2015).

3-4 Show students how to design aesthetically appealing and ecologically responsible packaging by emphasizing simplicity, practicality, and sustainability (Sastre, Ricardo Marques., 2022).

So, summarizing all the previous, incorporating minimalist design principles into sustainable packaging design courses can be achieved through various strategies such as:

- Including incorporating minimalist design principles into course content.
- Encouraging collaboration and community, incorporating experiential learning and real-world applications.
- Teaching sustainable manufacturing practices and materials.

These strategies can help promote a more sustainable future by fostering a deeper understanding of essential design elements and promoting sustainable manufacturing practices.

### 4- Assessing the knowledge and Skills of the Students

To ensure that students are gaining the knowledge and skills needed to create sustainable packaging solutions, it is important to measure the effectiveness of these strategies by assessing students:

#### **4-1 Student knowledge and skills**

Assess students' knowledge and skills in sustainable packaging design. This can be done through assignments and projects that evaluate students' understanding of sustainable design principles, their ability to apply these principles to packaging design, and their capacity to create sustainable packaging design solutions (Baumann, Carsten, and Jonathan Till, 2014).

#### **4-2 Getting inputs from the Industry**

This can involve soliciting feedback from industry partners on the quality of student work as well as the relevance of the skills and knowledge developed in the course. In addition, educators can add or modify the content of the course or the directions of the project to meet market needs (Boks, Casper, and Armandeke Stevels, 2014).

#### **4-3 Measuring Student engagement and satisfaction**

Measuring student engagement and satisfaction involves assessing student participation in class discussions, their level of interest in the course material, and their overall satisfaction with the course and we can measure that by using various tools such as surveys and focus groups. (Elsawahli, Ahmed, Sameh Y. Al-Tarawneh, and Ali Abuelqumboz, 2017).

#### **4-4 Evaluating post-graduation employment outcomes**

Evaluate post-graduation employment outcomes by assessing the extent to

which graduates can secure jobs in the packaging design industry as well as the extent to which they can apply the skills and knowledge developed in the course to their work (Nguyen, Trang. 2017).

Overall, measuring the effectiveness of strategies for minimalist packaging design in higher education courses requires a comprehensive approach that considers multiple variables.

Therefore, a sustainable packaging design course should aim to provide students with a solid understanding of the fundamentals of sustainable packaging as well as how minimalist design can be used to create effective and environmentally friendly packaging solutions. It should also teach students about the role of packaging in society and how it may be modified to have a lower environmental impact (Walker, S., & Giard, J., 2005).

In this way, the researcher proposes that a major component of the packaging design curriculum should be a curriculum that covers key subjects related to minimalist principles. To assist students in grasping the relationship between the minimalist approach and the packaging design industry, these subjects should be taught following the primary fundamentals and methodology of sustainable packaging design.

#### **5- Suggested Curriculum to Teach the Minimalist in Packaging Design**

Therefore, the researcher suggests this curriculum to teach the minimalist in packaging design:

##### **5-1 Week 1: Introduction to Sustainable Packaging Design**



1. Definition, significance, and benefits of sustainable packaging design.
2. Consumers' involvement in boosting demand for sustainable packaging.
3. How does customer behavior affect packaging design?

### 5-2 Week 2: Sustainable and Innovative Packaging Solutions

1. Renewable, biodegradable, and recyclable materials.
2. Reuse, recycling, and refill design strategies.
3. Examples of creative and environmentally friendly packaging solutions.
4. Case studies of businesses that have successfully used environmentally friendly packaging techniques.

### 5-3 Week 3: Minimalist Design Principles

1. Introduction to minimalist design concepts.
2. Packaging design using minimalist design principles.
3. The concepts of simplicity, utility, and waste minimization.
4. Project to apply minimalist design principles.

### 5-4 Week 4 -6: Project in Progress

Each week, a mix of lectures, debates, one-to-one feedback, and hands-on activities might be used to engage students and reinforce their comprehension of the ideas. Therefore, the student can test his design by printing it and making a physical mockup to have real feedback from his educator and his colleagues and may be connected with the manufactories to have more studies and development.

## 6- Examples of applying minimalist concepts in sustainable packaging design courses

### 6-1 Project Name: Juhayna - juices

The main concept is to create a clear, simple, and minimal design in which the illustration is the main visual and the background is white.

The student used the color of capes as a color code for each product. Therefore, the design distinguishes itself from other products and is easy for consumers to recognize. The minimal design makes the pack friendlier to the environment because simple visuals will reduce the adjustment time in the printing process. In addition, reducing the quantities of inks (shown in Fig. 2).



Figure 2- Design for Juhayna Juice by Jana Khaled Hassan

### 6-2 Project: Corona Chocolate Powder:

The concept is to change "corona cacao powder" packaging from a paper box with a plastic pouch inside to a stand-up zip-locked pouch made of craft paper to protect the product, make it more usable, make it easy to recycle, and protect the product inside. In addition, to save food waste, provide small packages for people who need small quantities of the product, so they will not have to buy the large pouch. Furthermore, the new visual design was created by using a minimalist theme that is modern, rich, and appealing. Moreover, providing a transparent

window to show the product inside is more attractive (shown in Fig. 3).



Figure 3 - Design Options for Corona Drinking Chocolate by Shaimaa Gamal

### 6-3 Project Name: BAIT Food

The concept is to have minimalism in the design by using solid colors in the background and using a clear photo for the final product as a main visual. In addition, minimal illustrations were placed in the background to enhance the design, and the background became empty. Moreover, using craft paper is an eco-friendly and easy-to-recycle material. Finally, the student added the recipe with a quick response code making the package a smart package (shown in Fig. 4).



Figure 4 - Design Options for Bait Food by Amira Hany Sayed

### 6-4 Project: Misr Café– Coffee Break

The concept is that the current Misr Café package is too congested and has too many visual elements. Applying a minimalistic approach to the pack improved it and made it more environmentally friendly. The goal is to create minimalistic packages that are visually pleasing yet low in cost. Minimalistic packs look very modern, and creating them does not use up many resources. Minimalistic packs do not waste printing inks or materials during their production and save time in the

production process. Therefore, the advantages of the minimalistic approach are that it is ecologically friendly, clear to the brand while retaining its original identity and stressing its aesthetic aspects, is aesthetically appealing, inexpensive in cost, appears contemporary or simple, and does not consume many resources (shown in Fig 5).



Figure 5 - Design Options for the Cappuccino Coffee Break by Yomna Ismail

As a result, some projects produced from the Minimalist assignment emerged and won in both national and international competitions, with the judges consisting of esteemed academic and marketing professionals. These competitions took place between 2019 and 2023.

### 7- Conclusion

In conclusion, incorporating minimalist design principles into packaging design education can provide a holistic approach to promoting sustainable practices in the field. By emphasizing simplicity, functionality, efficiency, and educators can teach students how to create visually appealing and sustainable packaging designs. However, some challenges must be addressed, such as balancing simplicity and functionality, meeting necessary barrier requirements, and addressing

consumer perception and acceptance. By providing real-world examples and encouraging creativity and innovation, educators can help students overcome these challenges and effectively integrate minimalist design principles into their packaging designs.

## 8- Results

Minimalist design principles in sustainable packaging can significantly reduce costs, materials, time, and energy, thereby promoting environmental sustainability. By incorporating these principles into packaging design education, students can learn to create visually appealing and environmentally responsible packaging designs that promote responsible consumption and reduce waste. Strategies for incorporating minimalist design principles include increasing collaboration, practical learning, and teaching sustainable manufacturing techniques and materials. Educators should ensure students understand barrier requirements and the importance of adequate product protection within minimalist design approaches. Incorporating minimalist design principles into packaging design education can balance simplicity and functionality, address consumer perception and acceptance challenges, encourage creativity and innovation, and provide real-world examples and case studies of successful minimalist packaging designs. This approach can help students design sustainable packaging solutions that meet consumer and environmental needs, bridge the gap between academic knowledge and industry practices, and promote consumer behavior change towards more sustainable packaging choices. By incorporating minimalist design principles into educational programs, students can develop the knowledge,

skills, and experience needed to design sustainable packaging solutions that meet both consumers and the environment.

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