Eco-friendly and reusable packaging in e-commerce – an analysis of consumer preferences

ICEC 2020

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The VerPlaPoS project deals with consumer reactions and avoidance of plastic packaging

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VerPlaPoS – Research Objective

- Identification of strategies to avoid plastic packaging along the supply chains of clothing and food
- Life-cycle assessment of different plastic packaging materials
- **Investigation of consumer behavior regarding plastic packaging in e-commerce of clothing**

- Project duration: 01.10.2017-31.03.2021

- Homepage: www.plastikvermeidung.de

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The growing online retail sector is causing a high volume of packaging

Situation

- Online retail is **growing** steadily

- Besides CO_2 emissions, a lot of **packaging waste** is generated such as product packaging, transport packaging, and filling material

- **Importance** of sustainability is increasing among consumers and within the industry

Two pre-studies form the basis for the development of the research question

Complication

Pre-study 1
- An analysis of n=65 online stores finds that only 10% use environmentally friendly packaging
- Only 16% of these online stores provide consumers with information about packaging

Pre-study 2
- Interviews with online and multi-channel retailers reveal great uncertainty regarding the question of which packaging is preferred by consumers

Research question

How should environmentally friendly packaging in online retailing be designed to be accepted and used by consumers?

We collected data on packaging preferences of German consumers in an online survey

Overview

Collection period: June/July 2020

N = 1,491 people were surveyed who regularly make online purchases

48.4% ⟪ ♂ ♀ ⟫ 51.6%

42% ⟪ 🌾🏠 🏢 ⟫ 58%

18 years ⟵————— Ø-age: 43 years —————⟶ 65 years

⟵————— Ø-income: 2,000 - 3,000€ net/month —————⟶

→ Sample is representative for the German working age population

The respondents rated different options for each packaging component

Product packaging

Type of packaging

Transport packaging

Filling material

Quellen Bilder: https://www.bb-verpackungsshop.de; https://www.karton.eu/; https://www.wagener-verpackung.de/

Consumers prefer product packaging made from recycled paper

Product packaging

1. **Bag of recycled paper** (m=4.45)

2. **Plastic bag - biodegradable** (m=3.53)

3. **Plastic bag - recycled** (m=3.36)

4. **Plastic bag - reusable** (m=3.05)

5. **Tissue paper** (m=2.79)

6. **No product packaging** (m=2.72)

7. **Plastic bag** (m=1.09)

All mean differences are significant at p<0.001.

Consumers prefer a cardboard box as transport packaging.

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Transport packaging

1. **Cardboard box** (m=3.69)

2. **Reusable shipping bag** (m=2.97)

3. **Shipping bag - biodegradable plastic** (m=2.76)

4. **Reusable shipping box - recycled material** (m=2.63)

5. **Shipping bag - recycled plastic** (m=2.34)

6. **Shipping bag - plastic** (m=0.61)

All mean differences are significant at $p < 0.001$.

Consumers prefer filling materials made of recycled paper rather than no filling materials

Filling material

1. **Recycled paper** (m=3.47)

2. **No filling material** (m=3.25)

3. **Plant-based** (m=3.06)

4. **Biodegradable plastic** (m=2.50)

5. **Recycled plastic** (m=2.10)

6. **Plastic** (m=0.62)

All mean differences are significant at p<0.001.

Even eco-conscious consumers seem to be unsure which packaging alternatives they should prefer

The **higher** the own **environmental awareness**, the **less** the respondents choose **conventional plastic packaging**.

But:

There is **no clear correlation** between the **environmental awareness** of the respondents and the **ranking of the other packaging alternatives**.

Even environmentally conscious people seem to be unsure which packaging alternatives are preferable from an ecological point of view.

Overall, however, they rate conventional plastic packaging worse than less environmentally conscious individuals.

Conventional plastic packaging alternatives still have environmental shortcomings

Recycled plastic

+ Disposal infrastructure
- Limited recycling

Biodegradable plastic

+ Reduction of littering
- Disposal infrastructure

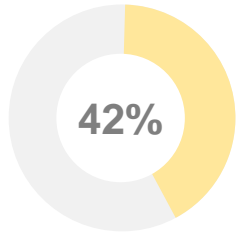**Reusable packaging**
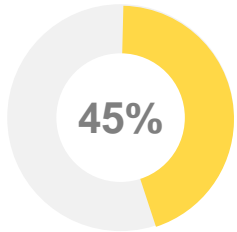
+ Waste management
- Return management
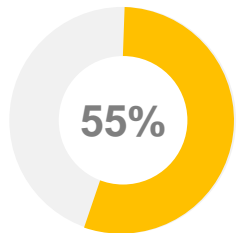
Recycled paper

+ Disposal infrastructure
- Production

Recycle

Biodegrad-able

Reuse

Recycle

Consumers reuse about 50% of the packaging they receive from online orders

42% …of **filling material** is reused by consumers on average.

45% …of **product packaging** is reused by consumers on average.

55% …of **transport packaging** is reused by consumers on average.

Consumers prefer a reusable shipping bag that can be returned by mail

Preferences regarding reusable packaging

1 **Reusable shipping bag**, which can be folded and returned to the online retailer by mail.

2 **Reusable transport box**, which is **picked up by the parcel service** at the consumers' home.

3 **Reusable transport box**, which **must be returned** to the parcel service provider **by the consumer**.

Consumers are willing to pay a premium for sustainable packaging

Willingness to pay

For environmentally friendly single-use packaging:
50% of the respondents would pay an average premium of 1.46€.

For reusable packaging:
50% of the respondents would pay an average premium of 1.90€
or pay a deposit of 3.25€.

Factors influencing willingness to pay

Higher willingness to pay a premium among consumers who...
... order frequently.
... return frequently.
... live in an urban environment.

Consumers demand information on the recycling and disposal of packaging

Important	Neutral	Unimportant

The following aspects are considered important by consumers:

1. Relationship between size of packaging and product

2. Neutral smell of the clothing

3. Clothing free from dust

4. Proper disposal of the packaging easily recognizable

5. Instruction on proper disposal

6. Recyclable packaging material

An appealing packaging design and immediate delivery are not important

Important	Neutral	**Unimportant**

The following aspects are considered unimportant by consumers:

1. Appealing packaging design

2. Immediate delivery of products (multiple shipments for one order)

3. Clothing immediately wearable without washing

4. Compensation for the use of environmentally friendly packaging (e.g. discount or voucher)

The results provide implications for the development of company and policy measures

Implications

- Online retailers should provide **information on packaging used**

- **Educating consumers** about packaging and its environmental impact

- Packaging should be **easy to dispose of** and contain **instructions for correct disposal**

- **Basic requirements** (cleanliness, smell neutrality) must be guaranteed for all alternatives

- Try **alternatives to plastic packaging** or **reusable plastic packaging**

Outlook

→ **comparison of consumer preferences with results from life cycle assessment**

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