



# Disposable but indispensable: The role of packaging in everyday food consumption

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## ABSTRACT

Consumers nowadays usually dispose of food packaging after a single use. As the amount of packaging waste increases, it is of the utmost importance to encourage its reduction. Whereas most previous studies have focused on packaging in practices related to supermarkets, we analyse its role in food consumption beyond the realm of shopping. Rooted in practice theories, we conceptually frame packaging as an integral material element that is unconsciously used in daily food consumption. To explore this idea, we collected qualitative data from 26 consumers in Berlin, Germany, combining food diaries and interviews. Our results illustrate that disposable packaging is entangled in many food consumption practices in multiple ways. It is a multifaceted object that saves time and space while facilitating consumption, making it difficult for consumers to sidestep. Based on these insights, we derive recommendations for a shift towards packaging waste prevention.

**KEYWORDS** Food packaging; consumption practices; packaging waste; practice theories; materiality; everyday life

## Introduction

Food packaging usually ends up in the bin after a single use, meaning that the amount of packaging waste is constantly increasing. In Germany, for example, private end consumers generated around nine million tonnes of packaging waste in 2018, corresponding to 47% of total national packaging waste (Schüler, 2020). As disposable packaging – especially in plastics-based forms – poses severe environmental threats to terrestrial and marine ecosystems (Galloway & Lewis, 2016; Li, Tse, & Fok, 2016; Liboiron et al., 2019, 2021; Saturno et al., 2020), finding ways for consumers to reduce it is of the utmost importance.

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Thus far, most social scientific studies have focused on waste prevention behaviour, with avoidance of food packaging as just one option (e.g. Bortoleto, 2015; Cox et al., 2010; Tucker & Douglas, 2007). Such studies are usually based on behavioural models and assume that several factors, such as knowledge, personal motives, and subjective norms, drive the kinds of behaviours that individuals consciously choose to enact (e.g. Ajzen, 1991; Schwartz & Howard, 1981). Accordingly, increasing waste is considered an outcome of individual consumer choices (Borg, Curtis, & Lindsay, 2020; Khan, Ahmed, & Najmi, 2019).

However, we also know that much of what people do in their daily lives is a matter of routine, involving little conscious reflection. Watson et al. (2020) show that this is also true for household food consumption, with most people handling food packaging – from purchase to disposal – as an object that is ‘completely ordinary, unremarkable, and barely noticed’ (Murcott, 2019, p. 98). Therefore, models relying primarily on individual choices fail to adequately address the core of the packaging waste problem, which we reframe with theories of social practices. As opposed to behavioural models, practice theories take socially shared practices as the central unit of analysis (Shove, Pantzar, & Watson, 2012). A social practice is considered a ‘routinized type of behaviour’, a culturally shared understanding – ‘a knowing how to do something’ that is largely implicit (Reckwitz, 2002b, pp. 249, 251). Accordingly, packaging waste is not so much a consequence of individual consumer choices but more an unintended product of enacting everyday practices (Bissmont, 2020).

In this article, we analyse the embeddedness of disposable packaging as a pervasive but hardly recognised material component of current food practices related to domestic meal consumption. By identifying how the widespread use of disposable packaging in everyday food consumption is perpetuated, measures for a shift towards more effective waste prevention can be developed. In this vein, our study responds to Nielsen, Hasselbalch, Holmberg, and Stripple (2020), who call for further investigation not only of norms but also of practices that maintain the use of plastics in society.

The remainder of this article is structured as follows. First, we discuss the literature on disposable packaging in food consumption, which is mainly focused on packaging in practices related to supermarkets. Second, we elaborate a conceptual framework for analysing packaging in the everyday lives of consumers based on concepts from practice theories, especially those that conceptualise materiality within social practices. Third, we describe our method for data collection and analysis, which combined food diaries and packaging waste pictures as a basis

for conducting interviews with consumers in Berlin, Germany. Fourth, we present our findings by illustrating key facets of the entanglement of packaging with current food consumption. Finally, we discuss the results and possible implications for packaging waste prevention.

### **Disposable packaging as a blind spot in food consumption research beyond the supermarket**

Current studies on food packaging are rooted in diverse fields within the social sciences. We build upon studies that directly or indirectly point to the role of food packaging in food consumption. To begin, we differentiate between three strands in the literature.

Studies in the first strand hold that disposable packaging effects selling and buying practices in supermarkets. On the one hand, packaging shapes the selling routines of retailers. Due to the development of pre-packaged products, retailers were able to establish self-service retail stores (Murcott, 2019). Whereas food was previously sold directly by people, the selling function has over time been transferred to packaging (Kniazeva & Belk, 2007). Today, packaging largely sells the product it contains. Hawkins (2013) proposes that packaging surfaces provide space for brands to revamp the meaning of the product within. For example, whereas water used to be cheap and ordinary, the bottle provided a means for transforming it into something unique that can be traded as a commodity with special value. Furthermore, with its selling function, the packaging is able to initiate a dialogue with customers (Kniazeva & Belk, 2007). In this vein, Cochoy and Grandclément-Chaffy (2005) point out that packaging enables different actors to speak to customers, including manufacturers ('this is a high quality product'), health authorities ('smoking kills') or recyclers ('discard packaging properly'). Additionally, Sattlegger (2020) notes that packaging not only sells products but also acts as an indicator for retailers to assess product quantities and qualities, such as freshness or fullness. On the other hand, packaging also shapes the buying practices of consumers. Over time, packaged food has become the norm among consumers (Cochoy, 2004), and Cochoy and Grandclément-Chaffy (2005) note that 'naked products' (unpacked products) may even trouble some consumers, because they are not used to handling them (p. 649). As packaging now often stands between consumers and products, traditional methods of selecting food by touching, smelling and looking are being abandoned (Watkins, 2008) and replaced by examining labels (de

Certeau, Giard, & Mayol, 2014). Consumers now need to rely on written information on packaging, including ingredients declarations, place of origin, and nutritional content (Cochoy, 2004; 2007; Cochoy & Grandclément-Chaffy, 2005). For example, de Certeau et al. (2014) mention that for meat the date on the packaging could theoretically refer to the day the animal was slaughtered, the packaging date, the sell-by date, or the expiration date. Yet, packaging information can also attribute new characteristics to a product which would otherwise be invisible, transforming it 'by hiding what it shows and showing what it hides' (Cochoy, 2007, p. 120). In this way, consumers can discover invisible dimensions of products and 'learn to exchange their preferences for new references' (Cochoy, 2007, p. 120). For example, invisible but labelled nutritional content can become a new criterion for consumers in selecting products.

In addition to studies focused on disposable packaging as a key component of selling and buying, a second strand of the literature holds that consumption is 'not itself a practice but is rather a moment in almost every practice' (Warde, 2005, p. 137) and therefore is not limited to the act of shopping. Thus, these studies analyse a range of practices related to food consumption, such as cooking (Plessz & Étilé, 2019), eating (Cheng, Olsen, Southerton, & Warde, 2007; Plessz & Wahlen, 2020; Warde, 2013, 2016), eating out (Bugge & Lavik, 2010; Paddock, Warde, & Whillans, 2017; Warde & Martens, 2000), ordering food (Liu & Chen, 2019) or discarding food (Evans, 2012). However, disposable packaging is virtually absent from these studies, although most food today is packaged (Murcott, 2019).

Finally, there is a nascent third strand of studies concerned with plastics, including food packaging analysing their role in society. Based on analysis of the interplay between consumer practices and commercial, regulatory, as well as socio-cultural requirements, Evans, Parsons, Jackson, Greenwood, and Ryan (2020) describe the rise of plastics in society as a form of co-evolution, emphasising that plastics need to be understood in terms of the networks of which they are part. To counteract plastic pollution, Liboiron (2016) argues that considering their specific characteristics is crucial, as they affect how problems are framed and solutions found. Further, Hawkins (2021) addresses the removal of plastics from daily life as involving processes of attachment to and detachment from objects, while raising questions of who should care for the problems caused by plastics. Similarly, Sattlegger (2021) analyses an innovation process in a supermarket that aims to reduce plastic

packaging, suggesting that withdrawal from plastics is an interactive process of negotiating object relations.

All in all, whereas the third strand of studies emphasises the importance of understanding the role of plastics in society overall, most studies to date have focused only on food packaging in selling and purchasing practices, with disposable packaging being rarely addressed in other practices linked to daily food consumption beyond the supermarket. Our aim, therefore, is to investigate how the use of packaging in current food consumption is sustained by identifying how disposable food packaging is entangled in contemporary food consumption.

### **Conceptualising disposable food packaging as an integral material element of food consumption**

Disposable food packaging is embodied as material things, objects or artefacts that are inseparable from the practices in which they are entangled. Although materiality has been theorised in a number of ways within the social sciences (e.g. Callon, Méadel, & Rabeharisoa, 2002; Muniesa, Millo, & Callon, 2007), we follow practice theories which blur the dichotomy between the social and the material by proposing that society and materiality are not two separate realms but are rather inevitably intertwined. We bring together different concepts rooted in practice theories into a consistent framework to analyse food packaging as an object that is inconspicuously used in food consumption.

Practice theorists conceptualise materiality in different ways (e.g. Blue & Spurling, 2017; Reckwitz, 2002a, 2002b; Schatzki, 2010; Shove et al., 2012). In this article, we follow Shove et al. (2012), who hold that practices consist of three interconnected, constitutive elements that mutually shape each other: ‘materials’ ‘meanings’ and ‘competences’ (Shove et al., 2012, pp. 22–25). As a practice cannot be reduced to any of these elements, those who perform it need to actively integrate all three (Shove et al., 2012). Consequently, we analyse disposable food packaging as a constitutive, material element of food consumption intertwined with meanings and competences.

Moreover, objects can also be considered beyond questions of use (Rinkinen, Jalas, & Shove, 2015; Schatzki, 1996). According to Schatzki (1996), when performing practices people also ‘observe objects, examine them, measure them, admire them, draw them and talk about them in numerous ways that do not pertain to use’ (Schatzki, 1996,

p. 114). Thus, while examining the active use of packaging within practices, we also consider other relationships it can have with respect to practices, such as ways consumers assess it.

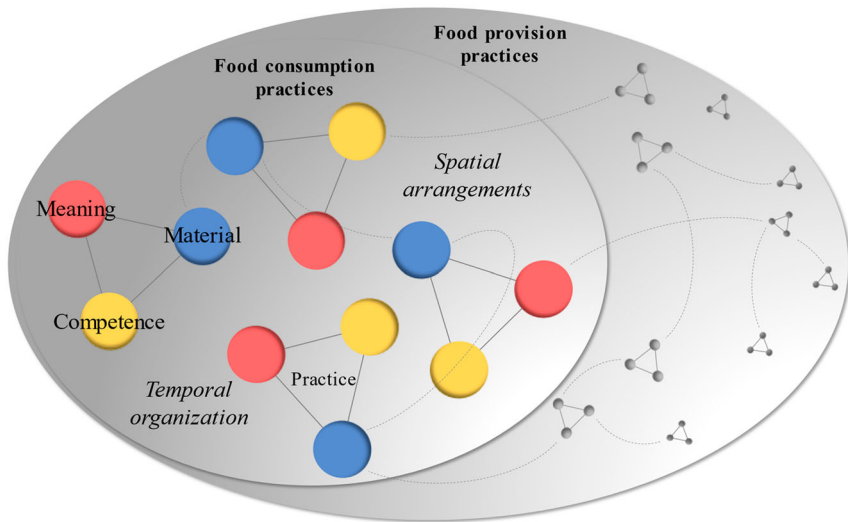
Practices are never performed in isolation but, rather, are linked to other practices (Blue & Spurling, 2017; Hui, Schatzki, & Shove, 2017; Nicolini, 2017; Schatzki, 2016; Shove et al., 2012). These interrelated practices create specific constellations (Castelo, Schäfer, & Silva, 2020), such as ‘complexes’ composed of practices that stick together as they depend on each other (Shove et al., 2012). For example, in order to eat a meal at home, it is necessary to buy food supplies, transport them home and prepare them (Castelo et al., 2020). Tied to numerous other everyday practices, these food consumption practices are enmeshed in and configured by practices of food provision (Evans & Mylan, 2019), which largely define the practices consumers must perform to realise their daily food routines. Thus, for example, shopping at supermarkets requires different practices than participation in community-supported agriculture. Correspondingly, we examine the food consumption complex as being interrelated with supermarket food provision practices.

Moreover, as constitutive elements of any practice, materials can circulate between practices. Hui et al. (2017) use the notion of ‘threading through’ to capture how things move across practices and, thereby, link them (p. 4). While threading through practices, the same material element can relate to a particular practice in different ways. According to Shove (2017), things can have three roles within practices: ‘infrastructures’ that form their background, ‘devices’ that are integral to their being carried out, and ‘resources’ which are used up or transformed in their performance (pp. 158–161). This means that the roles of things are not fixed but relational to certain practices (Rinkinen et al., 2015; Shove, 2017). For example, an object playing an infrastructural role for one practice can act as a device in another. In this sense, we follow disposable packaging as it circulates through food consumption practices, focusing particularly on its roles when in action.

Furthermore, practices are temporally and spatially situated (Shove et al., 2012) and are always performed in certain places and at certain times (Hui, 2017), thus competing for time and space as finite resources in daily life (Shove, 2009; Shove, Trentmann, & Wilk, 2009). Time devoted to one practice cannot be invested in another (Shove et al., 2012; Southerton, 2003). Equally, space which is taken for one practice is not available for another. Therefore, we note the interconnectedness

of disposable packaging with the temporal organisation and spatial arrangement of specific food consumption practices.

Based on these concepts that emphasise the role of materials within social practices, we have developed a framework illustrated in [Figure 1](#). Using this framework, we (1) seek to identify food consumption practices that disposable packaging is entangled in and then (2) investigate how it is entangled. To do so, we dissect the entanglement of disposable food packaging materials in terms of (a) the meanings and competences of practices, (b) their temporal organisation and (c) spatial arrangement.



**Figure 1.** Framework for analysing disposable packaging as a material element of food consumption.

### **Studying disposable food packaging in everyday food consumption by combining diaries and interviews**

To research the embeddedness of disposable packaging in food consumption, we collected data in April and May 2020 in Berlin, Germany. We chose an urban context because ‘urban life is multifaceted’ (van Diepen & Musterd, 2009, p. 331) and composed of an extraordinary variety of lifestyles, including different food consumption practices. Nonetheless, we assume that our insights may differ from other possible study contexts – whether in other cities or rural areas. At the time of our study, several governmental restrictions were in place to contain the COVID-19 pandemic, which had recently reached Germany. These restrictions mainly

aimed at reducing social contact, with people working from home, when possible; restaurants and cafés only offering delivery service; and children receiving schooling at home. Importantly for this study, these measures significantly disrupted daily routines, meaning that the pandemic can be seen as a crisis. Crises can be promising times for collecting data on routines, because they can serve as ‘a temporary flashlight, illuminating dynamics of everyday life that lie obscured’ (Trentmann, 2009, p. 80). In particular, people may find it easier to examine their unconscious daily food routines whenever these are interrupted.

### **Data collection**

Data collection for this study combined food diaries and interviews and followed three steps:

First, from 8 to 28 April 2020, we recruited potential participants by sending an invitation via several email lists, including institutional contacts, an environmental association, and neighbourhood management organisations. The invitation included a link to an online tool through which interested participants were asked to provide some information that we used as primary and secondary selection criteria. Primary criteria were related to the spatial and temporal organisation of everyday life (e.g. urban area, building type, weekly working hours), whereas secondary criteria consisted of sociodemographic characteristics (e.g. age, gender, profession). In total, 70 people expressed interest, of whom we assembled a heterogeneous sample of 26 participants. The sample consisted of 19 female and seven male participants, with an age range between 20 and 78 years. Seven of the participants lived alone, four in couples, eight in family households, and seven in shared flats. The key participant characteristics are shown in [Table 1](#).

Second, between 4 and 11 May 2020, participants recorded their food routines for one week in a semi-structured diary. According to Sheble and Wildemuth (2016), diaries capture life as it is lived. They are especially effective in revealing mundane habits (Bolger, Davis, & Rafaeli, 2003), such as food practices. Since participants ideally document their routines in a timely manner, diaries can reduce recall errors (Sheble & Wildemuth, 2016). For our diaries, we particularly asked participants to document their food planning, shopping, cooking, eating, and disposal practices on a sheet of paper and instructed them to take daily pictures of their food packaging waste. Whereas participants sent their fully completed written diary to us by post at the end of the week, we asked them to send the

**Table 1.** List of participants.

Name	Gender	Age	Profession	Working hours per week	Household type	Urban area	Building type
<b>Alexandra</b>	Female	28	Scientific advisor	19.5	Couple	City center	Block of houses
<b>Amara</b>	Female	23	Student, cashier	40	Single household	Outskirt	Detached house
<b>Amelie</b>	Female	42	Quality controller	40	Family	City center	Multiple dwelling
<b>Ben</b>	Male	35	Communication scientist	40	Single household	Outskirt	Tower block
<b>Charlotte</b>	Female	78	Pensioner	50	Family	Outskirt	Detached house
<b>Christian</b>	Male	59	Customer consultant	40	Couple	Outskirt	Multiple dwelling
<b>Daniel</b>	Male	31	Team leader	30	Shared flat	City center	Block of houses
<b>Elena</b>	Female	28	Student	10	Shared flat	Outskirt	Block of houses
<b>Elias</b>	Male	23	Student	11	Family	Outskirt	Detached house
<b>Emilia</b>	Female	28	Student	6	Couple	Outskirt	Block of houses
<b>Georg</b>	Male	70	Pensioner	0	Single household	City center	Multiple dwelling
<b>Hanna</b>	Female	26	Student	0	Shared flat	Outskirt	Multiple dwelling
<b>Johanna</b>	Female	31	Web developer	30	Single household	City center	Multiple dwelling
<b>Julia</b>	Female	55	Pedagogical assistant	21.5	Family	City center	Multiple dwelling
<b>Karin</b>	Female	77	Pensioner	0	Single household	Outskirt	Multiple dwelling
<b>Katharina</b>	Female	28	Information scientist	26	Family	Outskirt	Multiple dwelling
<b>Lea</b>	Female	30	Assisting editor	40	Couple	Outskirt	Block of houses
<b>Leon</b>	Male	32	Student	20	Family	Outskirt	Multiple dwelling
<b>Lina</b>	Female	61	Geriatric nurse	40	Single household	Outskirt	Multiple dwelling
<b>Luisa</b>	Female	54	Nursery schoolteacher	38.5	Family	City center	Multiple dwelling
<b>Magdalena</b>	Female	72	Pensioner	0	Single household	City center	Tower block
<b>Maria</b>	Female	45	Actress	15	Shared flat	City center	Block of houses
<b>Oskar</b>	Male	20	Student	0	Shared flat	Outskirt	Multiple dwelling
<b>Sabrina</b>	Female	63	Coach, guide, cantor	40	Shared flat	City center	Block of houses
<b>Swetlana</b>	Female	33	Seeking work	0	Family	Outskirt	Multiple dwelling
<b>Tomke</b>	Female	23	Student	14	Shared flat	City center	Tower block

pictures digitally at the end of every day. If participants did not send a photo, we reminded them to maintain the diary. Overall, we considered one week to be a sufficiently long time period to capture a ‘complete cycle’ (Sheble & Wildemuth, 2016, p. 7) of food routines, as it encompasses all weekdays and the weekend. Coincidentally, during this week some pandemic-related measures were revoked in Berlin, with for example smaller shops being allowed to reopen. Thus, in addition to food, participants were able to purchase other daily necessities from local retailers.

As a third step, from 14 to 28 May 2020, we conducted virtual semi-structured interviews with the participants so they could ‘talk about their practices’ (Hitchings, 2012, p. 61). We asked them to describe their everyday food practices before and during the lockdown, using their diary entries to support their memories. Moreover, to spark reflections on the role of packaging within their food practices, we asked them to assess the effects of packaging prevention on their food routines, with their pictures aiding recall of the kinds of food packaging they usually use. During this last period of our data collection, further pandemic-related measures were suspended in Berlin, meaning for instance that restaurants could reopen from 6 am to 10 pm, but bars and pubs remained shut. Thus, the participants could also go out again.

Overall, based on our empirical experience, we found that many people are hardly prepared to talk about packaging, as it is an ‘invisible object’ in their food practices. The ways that our participants talked about packaging appeared less oriented towards its embeddedness in their everyday food consumption practices and more in terms of its embeddedness in their discursive practices. This could be a consequence of our research design. On the one hand, the pictures of emptied food packaging that participants took might have drawn too much attention to its role during disposal, where it becomes waste and, thus, a problem for the environment. On the other hand, the diary entries might have drawn too much attention to food routines, without considering the integral role of packaging therein. Therefore, we recommend that future studies work with ethnographic methods that are more likely to help illuminate the embeddedness of packaging within mundane practices – from planning to shop to disposal – by directly capturing the uses of packaging within practices.

### **Data analysis**

Our analysis was mainly focused on the interviews, as they covered the core information contained in the diary entries and the packaging

pictures. We began by examining a random case and gradually included more cases, always choosing those with minimum and maximum contrast (Flick, 2018; Patton, 2002; Strübing, 2014). During this process, we consciously went back and forth between cases, combining three techniques.

Initially, we transcribed the interviews and then coded them inductively and deductively (Flick, 2018). We derived inductively generated codes from the interviews via open coding, and deductively generated codes were constructed out of our analytical framework. Using abductive reasoning, we were then able to formulate hypotheses about potential connections between the codes (Charmaz, 2014).

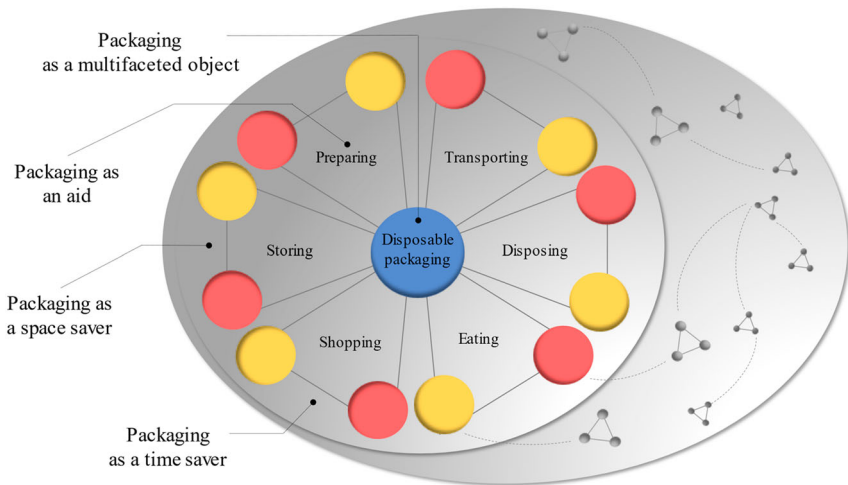
We subsequently devised situational and positional maps from the interview data to order the codes (Clarke, 2009). Situational maps sketch out the primary elements of a situation. For example, we developed a map listing objects that participants mentioned using in their everyday food practices that were linked to disposable packaging, such as fridges and backpacks. Positional maps lay out the major positions taken, and not taken, by the actors within a situation of concern. For example, we created a map revealing differences and similarities between storage spaces that participants used, comparing those who bought packaged food with those cultivating it themselves.

Finally, the analysis was accompanied by writing memos (Charmaz, 2014) in which we captured loose ideas about the role of packaging in food routines.

Based on these techniques, we eventually established a consistent structure with two core dimensions: (a) practices related to everyday food consumption within which packaging is entangled and (b) ways in which packaging is entangled within these practices. Each dimension has several subdimensions that can be combined with one another, creating multiple combinations of consumption practices and forms of entanglement. In outlining our results below, we do not describe all possible combinations but, rather, represent them by describing one exemplary form of entanglement based on the practice in which it was especially apparent. Thus, each highlighted form of entanglement is not only specific to the given practice but is found in all others as well. Moreover, within each practice, all the other forms of entanglement are also present. We illustrate our results by using quotes from the interviews, which we have translated from German for this purpose. In addition, whenever relevant we include the packaging pictures taken by the participants.

## Disposable food packaging entangled in everyday food consumption

Our results are illustrated in [Figure 2](#). First, we describe disposable packaging as a multifaceted object shared by many consumption practices and highlight when it becomes entangled with and disentangled from food consumption. Second, we discuss its role as an aid interwoven with the meanings and competences associated with food preparation. Third, we illustrate the ways disposable packaging serves as a space saver that is intertwined with the spatial arrangements of storage. Fourth, we outline how it acts as a time saver enmeshed within the temporal organisation of shopping in daily life – and not only shopping itself.



**Figure 2.** The entanglement of disposable packaging in the food consumption practices of urban consumers.

### *Disposable food packaging as a multifaceted object: Becoming entangled in and disentangled from food consumption*

Our data indicate that packaging is a multifaceted object, differing in terms of its physical (e.g. material, weight, size, shape) and visual (e.g. colours, brand, product information) attributes. In current food routines, packaging types with different material characteristics are routinely combined with each other. [Figure 3](#) illustrates the diversity of Karin's food packaging, for example.



**Figure 3.** A selection of Karin's food packaging.

Participants often talked at length about disposable food packaging. They described packaging as 'annoying' (Ben) because it is 'bad for the environment' (Oskar); if made of plastic, it was assessed as being 'worse' (Swetlana) than other materials. However, the ways in which they talked about it had little to do with its actual embeddedness in their food consumption. According to their diary entries, much of the food they consumed daily was packaged in plastics. This marks a clash between the ways they assessed disposable packing and the ways they actually use it. Lea, for example, rated products in glass bottles as being better for the environment, yet she normally purchased plastic bottles because they can be more easily carried on foot or by bike from the supermarket to her home:

I know, my conscience tells me 'you should buy milk in reusable bottles', but we already have a relatively high milk consumption, and that's just too heavy for me. I consider them [reusable containers] inconvenient. (Lea, 30 years old, assistant editor)

Lea's example illustrates that the attributes of packaging matter because they facilitate particular services, such as ease of transport. It can, therefore, be said that it is not so much the packaging itself that is used within food consumption but, rather, the services it provides. Thus, participants included disposable packaging in their daily food consumption when the services provided met the demands of their routine practices – often regardless of their evaluation in terms of associated

environmental problems. Outside of shopping, we identified that disposable packaging is generally entangled in participants' transporting, storing, preparing, and disposing practices, if food is provided by supermarkets.

In passing from one practice to another, for example from transporting to storing, the same kind of packaging can sometimes be confronted with inconsistent demands. When such a contradiction arises – where a certain form of packaging no longer matches the needs of a practice – participants disentangle it. They dispose of it. As each practice puts its own demands on the services a type of packaging provides, the moment of disentanglement can differ vastly: sometimes it is disposed directly after purchase, other times before storage, or generally after being emptied. For example, Lea, the participant who preferred plastic bottles for ease of transportation, did not like to handle plastic at home. Thus, she usually unpacked her food upon arrival and disposed of the packaging immediately:

I don't like the use of plastics in daily life. I see the advantages for transportation, but I don't like having to get muesli out of plastic at home. (Lea, 30 years old, assistant editor)

Overall, these examples illustrate that disposable food packaging is not a homogenous object but, rather, differs in terms of its attributes, which offer different services largely influencing the kinds of practices disposable packaging is likely to become entangled in. In consumers' food routines, if the service of a packaging fits the needs of a practice, it becomes entangled. When it no longer fits, it becomes disentangled. Consequently, the attributes of packaging and the needs of food practices are interwoven with one another. In the following, we elaborate upon different forms of this entanglement based on selected food practices.

### ***Disposable food packaging as an aid: Entanglement in the meanings and competences of food consumption***

Disposable food packaging as a multifaceted object is entangled in the meanings and competences of different food consumption practices, such as preparing food. Our data indicates that disposable food packaging, especially of processed foods, can act as a kitchen aid that modifies the competences and meanings of food preparation. Sometimes it even becomes an integral part of cooking practices, as described by Tomke. She prefers processed dumplings that can be boiled *sous vide*

in their packaging, because she does not need to prepare them herself, which makes cooking not only fast and simple but also less messy:

So, occasionally I eat dumplings. These dumplings come in a plastic cooking bag, which is very convenient because, otherwise, I would have to shape them by hand first. [...] You simply put the dumplings in the plastic bag into boiling water, and they swell up in there. And when they are ready, you tear them open, just like this, and have a finished dumpling. [...] You don't have to mix the dough and prepare it beforehand but, rather, simply throw it in with clean hands. (Tomke, 23 years old, student)

This example illustrates that disposable food packaging is intertwined with the meaning that hands, as well as the kitchen should be kept clean while cooking. If food is cooked in its packaging, consumers can reduce their food contact to a minimum. At the end, after cooking, they only need to discard the packaging, and the need to wash pots and clean the kitchen is substantially reduced. The idea that cooking needs to be clean is also illustrated by Ben. He explained that he does not cook elaborately because he is 'afraid that splashes of tomato sauce will dirty the kitchen walls' in his apartment. Therefore, he relies on the service of cooking food wrapped in plastics to keep his walls clean.

Further, Tomke's example also demonstrates that disposable food packaging is connected to the competences required to cook meals. As such food is already processed, there is no need to know how to make it oneself. In addition, packaging aids enable to control the portion size of meals: one packed dumpling corresponds to the exact amount of one dumpling, a couple of which will normally serve one person. Consequently, participants do not need the competence, or the necessary kitchen utensils, to choose the right quantity of raw ingredients to create their own meals, as the packaging indicates and portions the amount needed. Amara, for example, mentioned being annoyed that she 'cannot portion food just for one person and for one meal' and, consequently, must eat the same food for several days in a row, implying that such competences are no longer common knowledge.

Overall, these examples illustrate how disposable food packaging can act as an aid in food practices, providing the services of making food preparation fast, simple, and clean, with some previously required mental or bodily activities being delegated from the consumer to the packaging. In this way, disposable packaging makes food consumption more convenient, shaping and being shaped by the competences and meanings of consumers' food routines.

### ***Disposable food packaging as a space saver: Entanglement in the spatial arrangements of food consumption***

In addition to disposable food packaging being entangled in meanings and competences, it is also interwoven with the spatial arrangements of food practices, including storage. Consumers in urban areas, like our participants in Berlin, usually live in small apartments, mainly storing their food in small cabinets and refrigerators, sometimes with tiny freezer compartments. This storage infrastructure constrains the kinds and amounts of food that can be stored.

To cope with limited storage capacities, our participants usually only bought food in certain packaging formats. Emilia, for example, who was living with her partner in an apartment that is part of a tower block, only had a small fridge. To make the most out of its limited space, she preferred small packaging units precisely fitted to the product they contain. She could hardly imagine using her own reusable containers, believing that they would take up too much space in her fridge compared to the disposable ones:

Yeah, the problem [using reusable containers] is that you would have to see how they would fit into the refrigerator. Well, we have a very small refrigerator, and these small packages that you get in the supermarket are usually perfectly fitted to the product. They are very thin and don't take up too much extra space. (Emilia, 28 years old, student)

In contrast, other participants transferred their food out of its original packaging and put it into their own containers that perfectly fit into their cooling appliances. For example, Christian, living with his partner in a multiple dwelling house, put many different products into a large container 'as far as this makes sense' whenever there was a need to 'make room in the refrigerator', whereas Magdalena, who lived in a tower block, stored food in more suitable containers immediately after purchase. She even knew the exact dimensions of her small freezer compartment by heart:

Actually, I have only one fridge with a single freezer compartment in it [...] and only a bit fits in there. It is 14 cm high. So, I bought containers that fit on top of each other [...]. I once had mini cream puffs, which I took out of the packaging immediately, put them into a plastic bag, and that saved space. Whenever a container takes up too much space, I transfer its contents. (Magdalena, 72 years old, pensioner)

Limited space for food storage not only requires certain packaging formats but also affects the overall amount of packed food that could

be purchased. Participants, therefore, tended to buy groceries frequently, but only in small amounts, as they did not have sufficient space to store more. As disposable packaging offers various foods in small amounts on demand, it also shapes consumer understanding of what a 'normal' diet should consist of: always having a choice from a variety of different products. Thanks to packaging, participants can thus consume diverse fruits and vegetables independent of local seasonal rhythms. Charlotte, for example, says she wants to eat what she feels like and does not want her choice limited just because someone has 'harvested fresh fruits and vegetables'. In addition, the variety of options is further increased by processed foods enabled by disposable packaging, making available numerous products that are 'different but the same' (Julia), such as strawberry jam, raspberry jam, and cherry jam.

Overall, these examples show that disposable food packaging saves space. In so doing, it shapes and at the same time is shaped by the spatial arrangements of consumers' food practices. Packaging as a material object forms part of the material world and, as such, interacts with it. In this way, the material world has a life of its own, creating effects for all materials that are part of it. Storage is one example: the architecture of urban dwellings limits storage capacities, influencing preferences towards smaller packaging formats that can enable a more varied diet on demand within the same space constraints.

### ***Disposable food packaging as a time saver: Entanglement in the temporal organisation of food consumption***

Complementing its influence on spatial arrangements, disposable packaging is also entangled in the temporal organisation of food practices, including purchasing food. Although fresh fruits and vegetables are not always packed, processed food is usually sold in disposable packaging. Maria listed several products that she usually purchases, almost all of which, at least the processed foods, are sold in disposable packaging:

For some [items] it is possible, so you can decide whether to buy leeks with or without packaging. Some things you can't. I can't buy salmon without packaging. I had butter. I couldn't buy that without packaging. Today miso, I can't either. (Maria, 45 years old, actress)

In this vein, participants usually distinguished between the 'natural packaging' inherent to fruits and vegetables and 'artificial packaging',

which is interwoven not only with shopping itself (Cochoy, 2004) but also its temporal organisation in everyday life. Artificial packaging eliminates preparatory practices before shopping and, thus, saves time. This was revealed when we asked Maria if she could imagine shopping in stores that sell mostly unpackaged products. She listed several preparatory practices that would be necessary for buying unpacked products in such stores, including collecting containers, cleaning them, selecting appropriate ones and carrying them to the store. To her, such practices would require much time:

Well, I believe, I guess that it [buying unpacked products] takes more time. Yeah, I mean, indeed, you must think about how much of what you need [...]. And then you must take your own containers or the deposit containers that you need for shopping. So, yeah. I think it just takes more time. (Maria, 45 years old, actress)

In addition, artificial packaging saves time by substituting some activities not only before but during shopping as well. Participants usually considered it unwarranted to pack fruits and vegetables, as they already have natural packaging, and thus artificial packaging would not necessarily provide an additional service. Nonetheless, in some cases, some participants considered already packed fruits and vegetables to be more convenient. If disposable packaging holds fruits or vegetables together, there is no need to select them individually, thus saving time.

Moreover, as everything that is needed for grocery shopping is generally provided on site, including food that is already packaged, disposable packaging makes shopping easily combinable with other mundane everyday practices. It is usually done spontaneously and while participants are already on their way to another destination. Working full-time, Lea even said that she 'would need a vacation' to buy unpackaged products, as she would have to go to stores that were not on her way home from work. This would be too much of an effort in her daily life.

Overall, these examples reveal that disposable food packaging provides a service by saving time. In eliminating the need for some practices, packaging saves time. It thus shapes and is shaped by the temporal organisation of consumers' daily practices, with consumers depending on disposable packaging to maintain this organisation. For example, disposable packaging makes shopping easily combinable with other daily practices, such as work or leisure activities.

## **Disposable food packaging as an indispensable element of everyday food consumption**

Using practice theories, our study has conceptually framed disposable packaging in food routines while empirically investigating its entanglement in current food practices. In the next sections, we initially discuss our contributions towards understanding the roles of disposable packaging in everyday food practices. Following on, we elaborate possible implications for interventions aimed towards packaging waste prevention.

### ***Understanding disposable food packaging in everyday food consumption***

By understanding disposable packaging not as a separate but an integral element of food consumption, our study illustrates that packaging is a multifaceted object. Its attributes matter, because they offer certain services that prefigure the practices and ways a certain kind of packaging becomes entangled in or disentangled from. The study reveals a contradiction among our participants. On the one hand, they tend to evaluate disposable packaging critically, especially if it is made of plastic. Recent discourses on the severe environmental impacts caused by plastic (Henderson & Green, 2020) might have contributed to this. On the other hand, however, the same participants unconsciously use disposable packaging, generally made of plastic, in their daily food consumption. Future studies, therefore, need to be sensitive to the ways in which disposable packaging is entangled in consumers' material and discursive practices.

Our study also shows that disposable packaging is *broadly* embedded in today's food routines in the sense of being integral to multiple practices that are related to everyday food consumption. This was only possible because we focused on a complex of practices instead of individual ones. Consequently, we not only confirmed that disposable packaging is ubiquitous when shopping but have also identified it as a constitutive element of transporting, storing, cooking, eating, and disposing practices. Disposable packaging is, therefore, a shared element of multiple intersecting food consumption practices.

Finally, our results reveal that disposable packaging is enmeshed not only in meanings and competences but also in the temporal and spatial organisation of food practices. Accordingly, meanings, i.e. culturally shared norms (Sahakian et al., 2021), can only partly explain practices.

As a result, the investigation of norms is not sufficient for understanding the use of plastics in society, and other forms of entanglement need to be analysed. The forms of entanglement addressed are not necessarily specific to the practices described but apply to other consumption practices as well. For example, packaging not only saves space during storage but also during transport (e.g. it fits in a backpack) or disposal (e.g. it can be crushed in the trash bin). Disposable packaging not only saves time when shopping but also when disposing of it (e.g. it does not need to be cleaned) or when cooking (e.g. it provides already processed food). Therefore, it is *deeply* embedded in current food routines in the sense of being integral, in multiple ways, to current food practices.

Overall, these findings show that disposable packaging has been inserted *broadly* and *deeply* into current food practices, making it enormously difficult for consumers to avoid it – it has thus become indispensable. Perhaps paradoxically, the flexibility of disposable packaging actually creates a kind of stability, as its attributes can be regularly reconfigured to better meet the changing requirements of dynamic consumption practices. It can, for example, be reconfigured to provide services that meet shifting expectations regarding ‘comfort, cleanliness and convenience’ (Shove, 2003, p. 395). As Minervini (2020) proposes, using the example of plastic water bottles, packaging solves ‘small issues’ that are related to everyday life (p. 374). This makes it a powerful tool, offering diverse services to solve these issues. Hence, disposable packaging is not only essential for the ways societies organise food provision (Sattlegger, Stieß, Raschewski, & Reindl, 2020) but has also become equally important to how people go about their everyday food consumption.

Given that disposable packaging both shapes and reflects food practices, it is possible to talk about the co-constitution of disposable packaging and food consumption (cf. Evans et al., 2020). For example, current food routines might reflect a spatial and temporal reconfiguration of practices that had previously been undertaken by consumers themselves. Many practices – specifically those related to the cultivation and processing of food – were outsourced to industrialised food companies that created a need for packaged foods. Since contemporary consumers feel increasingly ‘time squeezed’ (Southerton, 2003, p. 9), they tend to rely even more on disposable packaging to reduce the time and effort required to accomplish food practices that have not yet been outsourced (e.g. cleaning after cooking). As our study is limited to food consumption, future studies could ‘zoom out’ (Nicolini, 2009) to elaborate on facets of this co-constitution. So,

connections could, for example, be traced from practices in the kitchen to other everyday practices (e.g. work, leisure) and broader constellations (e.g. cultivation, processing, retailing). In this way, it may be possible to identify how these practices shape each other, interlock, and create mutual interdependencies with disposable packaging.

### ***Implications for packaging waste prevention***

Our study suggests that consumers use disposable packaging to maintain their daily food practices, indeed food practices would look very different without disposable packaging. Policy measures to prevent packaging therefore primarily need to address unconscious food routines, rather than individuals' choices. Such interventions need to cover domains of daily life that are often outside the scope of common waste prevention policies (Shove et al., 2012).

The complex of food consumption examined in this study reveals the kinds of practices and forms of entanglement that need to be addressed. We propose that interventions need to 'recreate' (Spurling, McMeekin, Shove, Southerton, & Welch, 2013, p. 9) the elements that make up current food routines, to reduce their material intensity. They need to shift materials, competences, and meanings in a direction that could make packaging prevention practices easier to enact. For example, initiatives could seek to alter the meaning of what a varied diet entails by teaching competences to cook different dishes from scratch instead of using small units of packaged and processed foods. Moreover, policy interventions could 'substitute' (Spurling et al., 2013, p. 11) current food practices with packaging prevention practices that fulfil the same purpose. For example, they could foster collective delivery services, especially in urban areas, to transport heavy but reusable containers from supermarkets to homes. In addition, interventions to promote packaging prevention need to address how current food practices spatially and temporally 'interlock' (Spurling et al., 2013, p. 12). For example, programmes could be designed to change the temporal organisation of food practices by fostering self-cultivation of some foods instead of buying their prepacked versions, or they could alter the material infrastructure of flats to create storage space for large packaging units that are less material intensive.

Essentially, measures to prevent packaging need to target the disruption of current food practices and the establishment of new, collectively shared ones. Analysing shopping in packaging-free stores, Fuentes, Enarsson, and Kristofferson (2019) similarly hold that pre-shopping, in-store, and post-

shopping practices must be ‘reinvented’ (p. 258). In this regard, our analysis supports the argument that citizens are not ‘passive consumers’ (Korsunova, Horn, & Vainio, 2021, p. 760) who merely need to buy what the food provision system provides, such as unpacked products. Instead, they need to play an active role, as material changes transform everyday practices. Future studies could therefore analyse the ways packaging waste prevention practices, such as shopping in packaging-free stores, recruit consumers who are willing to alter their practices.

## Conclusions

In this study, we have examined disposable packaging as an integral material element of culturally shared food consumption practices, rather than ascribing responsibility for the increased amounts of food packaging waste to individual consumers. We have developed a theoretical framework for analysing disposable packaging based on practice theories, providing a new way of conceptualising the increasing amounts of packaging waste. Building on this conceptual work, we have empirically examined the embeddedness of disposable packaging in current food consumption routines. With this, our study fills a gap in existing studies that have, to our knowledge, scarcely analysed its role in consumption practices beyond the supermarket. Based on these core contributions, our study may serve as a starting point for reframing policy interventions that promote packaging waste prevention. If packaging waste prevention is taken seriously, all the practices and multifaceted layers of entanglement elaborated in our study need to be considered, as they make disposable packaging indispensable in current food consumption.

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