UNIVERSITY OF TWENTE

Thesis submitted for the degree

Master of Science

# Choosing for local foods: using videos in online menu cards



## Preface

This thesis was conducted to obtain the master degree in Interaction Technology, carried out at the Human Media Interaction group at the University of Twente. There is a long list of people that supported me during the writing of this thesis and the research conducted prior. First and foremost, I would like to thank my two hands-on supervisors, Dr.ir. Juliet Haarman and Dr. Roelof de Vries, who aside from providing me with valuable feedback and knowledge, gave me the confidence and inspiration to make the most out of this thesis. Thank you Prof.dr. Dirk Heylen for sometimes jumping in and providing interesting new ideas, and Dr.ir. Wouter Eggink for assisting in the evaluation of this document.

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## Abstract

In recent years, the usage of digital signage and mobile devices to order food has increased. While also used in physical food establishments, they play a more significant role on online meal delivery platforms. Due to the absence of physical factors like room ambiance and interior design, more information about the establishment has to be conveyed through the online menu card. One big advantage over the traditional paper medium, is the opportunity to display moving imagery. Two survey studies were conducted to investigate the influence of videos on food choice and how these videos can be used to motivate customers to order more local foods. In the first study, participants were asked to choose a food item from a digital menu card consisting of images and videos. In an online survey, variables including their attention, evaluation of alternatives and food choice were measured. In the second study, three groups of participants were asked to choose a food item from a digital menu card where all items featured a video banner, but some represented that they were prepared with a local ingredient. Measurements included their perceived tastiness and sustainability, purchase intent and consumption goals. The videos were able to attract the attention of the participants and aided them in the evaluation of food choices. 52.4% of the participants chose for a food item featuring a video. By highlighting the benefits of local foods in the videos, between 52.9 and 59.7% of the participants chose for an item featuring local ingredients, depending on the user group. While tastiness was an important factor on purchase intent for all participants, the environmental impact of the food was only a significant factor for ones that cared about that. Local foods were perceived to be better for the environment by default, but not tastier compared to global foods. By using videos in online menu cards, people can be motivated to order more local produce.

# Abbreviations

ATT	Attention construct	
COI	Completeness of Information construct	
IF	Information Format construct	
COM	Comparability construct	
$\mathbf{TP}$	Time Pressure construct	
ю	Information Overload construct	
P-Taste	Perceived Tastiness	
P-Sus	Perceived Sustainability	
CG-Sus	Consumption Goal regarding sustainability	
<b>CG-Taste</b> Consumption Goal regarding tastiness		
P-Int	Purchase Intent	
$\mathbf{E}$	Extra Question	

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## Introduction

In 2021, The Netherlands exported over 104 billion euros worth of agricultural produce, making it the second biggest exporter of food in the world behind the United States (Ministerie van Landbouw, 2022; Lyddon, 2021). Together with an import of over 72 billion euros worth, the environmental impact of producing, packaging, cooling and transporting the goods in and out of the country is significant due to the release of greenhouse gases (Brain, 2012). With increasing energy insecurities and global warming potential, this topic has become more and more relevant recently (Jacobson, 2008).

Partly because of this, over recent years a trend has emerged where the benefits of buying and consuming more local produce have gained popularity (Nie & Zepeda, 2011). With this trend, consumers have become more aware of the impact of big industrialized food chains on farmers, the environment and communities (Lang & Lemmerer, 2019). With an increase in the demand for more background information regarding the food, like the place of origin, sustainability and potential usage of chemicals and pesticides, consumers have attempted to do their part to improve the global food industry.

However, as it turns out, the expectations of consumers regarding the factual implications of local foods are varied. While a lowered geographical distance between the farmer and consumer is a logical attribute, some expect higher quality, more authentic and minimally processed foods when buying local produce (Lang & Lemmerer, 2019). And even though consumers do not expect local produce to be more expensive to purchase, they are willing to pay more for them (Feldmann & Hamm, 2015).

Due to this, commercial food brands that sell products in supermarkets have been playing into this by advertising with food locality on their packaging (Johnston, Biro, & MacKendrick, 2009). This is not something often seen on (online) restaurant menu cards however, while this is a property that most food establishments share. Menu cards play a significant role in the process of ordering food, even more so on online food delivery platforms due to the absence of physical ambiance and interior design. With an already rapidly expanding market and another expected 30% of growth until 2025, investigating the possibilities of using online menu cards as a tool to motivate the consumption of local produce could be advantageous (Mallikarjun, Dekate, & Devi, 2021).

Because online food platforms don't use paper but digital menu cards, they are able to provide consumers not only with additional information through interactivity and the use of video, but also an increased amount of enjoyment in ordering (Yim & Yoo, 2020). By using videos, establishments can grab the consumers attention for the information that they wish to bring across. Research has shown that when using videos to present food items, a higher feeling of need is created (Lee & Kim, 2020).

With that, the research question for this paper is:

# "To what extent do videos regarding food locality in online menu cards influence food choice?"

To answer this research question, it is divided into two sub-questions, which are dedicated to exploring the effects of videos and the content of videos separately:

"SQ1: To what extent do videos in online menu cards influence the process of choosing food?"

### "SQ2: To what extent does the type of video content regarding food locality influence food choice?"

In this thesis, a test methodology is presented to obtain the data necessary to answer these questions. The first chapter focuses on highlighting research already conducted, and sets a clear baseline of the definition and benefits of *local* food. Existing research on the effects of videos on choice behavior is also explored. Lastly, multiple potential research models are presented that could be used as a backbone for the studies. In the second chapter, the hypotheses are derived and the framework of the studies is presented. In the third chapter, the first study is conducted, focusing on the effects of videos compared to static imagery. In the fourth chapter, the second study is explained, focusing on the content of the video format. After that, a discussion section can be found, followed by a limitations and future work section, and closing off with a conclusion.

## Chapter 1

## **Review of literature**

To gain understanding of how different sorts of media are being used in the food industry and how they influence food choice, a preparatory literature review was conducted. Firstly, existing literature regarding the usage of videos in the food industry and its impact on consumer choice was reviewed. Following, the different definitions and benefits of local foods were explored. Lastly, various decision making models and theories were explored with the aim to find one that could aid in providing structure to the studies in this research paper. The information gathered in this chapter, will be used to generate the hypotheses for this empirical paper and provide insights that can be used in the study design process.

## 1.1 Moving imagery

In the last decades, moving imagery has nested itself into the world, both on the streets and at home. In the 1970s, stores that were selling televisions started displaying advertisements on their inventory to highlight the quality of the screens and make some money on the side (Aranda, 2007). Ever since, video advertisements have been everywhere – including but not limited to roadsides and web pages, all with the goal to attract more customers than with static imagery. In this section, the effects of moving imagery will be explored, for advertisement and interactive purposes.

### 1.1.1 Digital signage and ordering food

In food establishments, videos have found its footing after using digital screens for years. Where the traditional way in fast food restaurants was to use written boards and back lit posters to show off their menu, these days televisions are used more and more due to their low maintenance cost and versatility. Additionally, it is an extra way to stand



Figure 1.1: Different types of digital menu systems by Sahin, 2019

out compared to competitors that use static images. While digital screens featuring new items, sales and specials have a positive impact on sales, this effect is even stronger with products related to food and entertainment (Burke, 2009). When displaying food menus on these displays and making them interactive, customers experienced more enjoyment and felt encouraged to order more food in a shorter period of time (Yim & Yoo, 2020). These interactive menus are currently mostly seen in all-you-can-eat sushi restaurants and fast food chains, but are starting to get implemented in different varieties as well. The usage of this kind of interactivity is found to lead towards more thoughts about the product in question (Van Noort, Voorveld, & Van Reijmersdal, 2012). Sahin (2020) makes an important distinction between the different kinds of digital menus used in businesses, and can be seen in Figure 1.1. Where non-touchscreen menus are mostly used to display information (e.g. sales, advertisements, upcoming products, available inventory), touchscreen menus are more used for self-service, ordering food and gaining dietary and ingredient information through dynamic menus. This is currently mostly done either in the form of e-tablets at the table or bigger dynamic screens at the entrance or counter.

In regards to non-touchscreen menus, Kiziltan stated in their research that the dynamic screens attracted 400 times more attention than their static counterparts Sahin (2020). Additionally, research showed that videos attached to dishes served as a means to create more mental imagery of the food and a higher feeling of need (Lee & Kim, 2020). By using these dynamic screens, either as a digital board or with touchscreen self-service technologies, there is potential to reduce customer uncertainty and provide them easier with more information to make an educated food choice (Rousseau, 2011). It is also possible to give the customer *more* information, especially when waiting for longer periods of time. When only glancing over a screen, a customer would only be able to see a split second of the dynamic content. However, when standing in line at the cashier for

example, it is possible to enlarge the amount of content the customer is exposed to. At the Digital Signage Expo 2012 in Las Vegas, companies Dairy Queen and Wendy's tried to provide insight on how they used digital menus to their advantage by influencing customer purchase decisions (Jay, 2012). According to the Vice President of Retail Merchandising, items that were displayed on the digital signs had increased sales numbers 80% of the time.

#### 1.1.2 Tablet based menus

According to Rousseau (2011), the use of e-tablet (hereafter just referred to as tablet) menus first emerged to display extensive wine lists that would change pretty often due to the shifts in inventory. When restaurants also started to use the technology, it became possible to display more nutritional values, longer ingredient lists and more vivid - and potentially moving - imagery with the dish. The most common occurrence are tablets for use at the table or touchscreen TV's at the entrance. Because tablets are light and very portable, they have the advantage of not having to be mounted in specific locations in the restaurant. With these tablets, it has been possible for restaurants to cut down on service staff, and give the customers a positive experience regarding service quality by enabling the customer to create and customize their order to their liking (Beldona, Buchanan, & Miller, 2014). When Wang and Wu (2014) studied a group of participants using tablet menus, it was discovered that they did not only have a positive influence on functional elements like the perceived usefulness and ease of use, but also on emotional elements like the perceived enjoyment. In fact, those emotional elements turned out to have a greater impact on the perceived value for customers than the functional elements (the perceived value would be an important factor in attracting and keeping customers (Soltani & Gharbi, 1970).

In research conducted by Lessel, Böhmer, Kröner, and Krüger (2012) on user requirements and guidelines for digital menu design, they concluded that the participants found the digital menu to have better usability than the paper counterpart. The main problems that arose however, originated from participants that were not accustomed to using digital devices. For example, the lack of knowledge on how to use a swipe gesture to go to the next page. Additionally, none of the 20 participants preferred the paper over the digital style (10% felt indifferent).

When researching if the movement of imagery ends up having an effect on the amount of times a dish is chosen, Peters (2014) found that by playing subtle videos of the dish rotating back and forth, it significantly improved the likeliness that plate of food would be chosen. It was theorized that one of the factors responsible for this choice behavior is the attention paid to the item. Armel, Beaumel, and Rangel (2008) discovered that food items that participants were fixated on longer, had a 6 to 11% more likeliness to be chosen. In this case, videos were used to increase focus time by introducing alternating content over multiple seconds, instead of one piece of information that one could glance over. There is a catch with this however, which will be explained in section 1.2.

### 1.2 Information overload

When using the video format to introduce a consumer to more information than possible with static imagery, there is a possibility for it to be perceived as too much information, resulting in adverse reactions. When Malhotra (1982) studied this phenomenon, they found that when participants were provided with 10, 15, 20 or 25 choice alternatives, or with information on 15, 20 or 25 attributes, they experienced a form of information overload. Similar research was conducted by Jacoby, Speller, and Kohn (1974), where they gave six participant groups different amounts of information about a various amount of brands. It revealed that more information was not always better, since there was a severe drop off in correct choices being made by the groups that were exposed to the largest amounts of information. In Eppler and Mengis (2008)'s literature review, they concluded that some relevant symptoms of information overload include inefficient work, negatively affected satisfaction, stress, confusion, lower decision quality and sense of loss of control.

Bettman, Luce, and Payne (1998) conducted a lot of research on this topic and how information overload ties in with consumer decision making – also very relevant for this paper. They made the connection between information overload and problem difficulty, which is determined by "problem size, time pressure, attribute correlation, completeness of information, information format and comparable versus non-comparable choices". They theorize that the decision complexity increases when:

- The problem size, or amount of information, increases and/or,
- The time available to process the available information decreases and/or,
- The degree of conflict between attributes increases and/or,
- The amount of information missing increases and/or,
- The presentation of the information becomes more complex and/or,
- The attributes compared do not share similar characteristics.

All of this can result in less optimal decision making. As a precaution against information overload, it is possible that consumers develop what is described as "display blindness", as described by Müller et al. (2009), where consumers start to ignore pieces of content shown. For the consumers, this would function as a coping mechanism. Other

of content shown. For the consumers, this would function as a coping mechanism. Other causes for this according to Müller et al. (2009) are perceiving the information to be irrelevant, or the recognition of the content being an advertisement. Eppler and Mengis (2008) back up this claim with their research, stating that by processing the information less in-depth and ignoring less relevant information, the quality of the decision-making process goes down. It is important to be mindful about how content is being displayed towards the consumers, and to make sure that as little information overload occurs as possible.

### 1.3 Local foods

In this section, the focus will be on the locality of foods. Firstly, the definition of *locality* will be investigated. After that, literature that focuses on the impact of local foods on the environment and health will be reviewed. Lastly, the expectations of consumers regarding local foods will be investigated.

### 1.3.1 Definition of local foods

To answer any research questions related to local foods, it is important to define what is actually meant by it. Many would instinctively connect geographical location in one way or another, with the official definition of *local* foods according to Oxford-Dictionary being "belonging to or connected with the particular place or area that you are talking about or with the place where you live". But even that does not define what "local" is – is something still local when it was produced 1 kilometer away? 20 kilometers? What about 100 kilometers?

#### Geographical location

According to Martinez (2010) there is no universally accepted definition of "local foods". The geographical distance between the producer and seller of food is influenced by many factors like the region, population density and transport infrastructure. The maximum distance stated by the U.S. Congress in the Food, Conservation, and Energy Act of 2008, for food to be considered local or regional "is less than 400 miles from its origin, or within the State in which it is produced" (Congress, 2008). According to Lang, Stanton, and Qu (2014), this number does not hold any theoretical basis and is purely chosen

#### **Review of literature**

with political implications in mind. In a survey held by the Leopold Institute in 2008, results showed that two-thirds of the participants considered the maximum distance for food to be deemed local 100 miles (DeWeerdt, 2009). Companies are also using this vague definition to their advantage, branding U.S. State-produced and branded foods as being local, while consumers clearly don't always agree on that. One of the largest grocers in America, Walmart determined that for their assortment, the foods would have to be produced and sold in the same state to be considered local (Clifford, 2010).

However, a problem occurs when using distance as a measure of locality. Not every piece of land is the same. In the middle of a big city, it could take tens of miles before the first farm is even reached. On top of that, some regions are surrounded by mountainous terrain or water. In those areas, it is more common to use travel time instead (Durham, King, & Roheim, 2009). This shows that the definition of locality for a person can be influenced by their location of residence. A different US grocer, Whole Foods, set their requirement based on the time it takes to transport the food from producer to store. As long as that is under 7 hours, the food could be considered local (Schmit, 2008). It must be noted though, that since these chains use the term *local* as a marketing buzzword sometimes, broadening the definition could work in their advantage.

A more narrow definition is used in the study conduced by Zepeda and Li (2006), who set the definition for local foods as "bought directly from farmers in one's own county or neighboring counties". The differences in these definitions are vast, with some driven by sales and others by the environment.

The problem with all of this, is that empirical studies conducted about local foods are also affected by all these different definitions and opinions. They have all used their own meanings, and due to the lack of a standardized definition, results of these studies should be compared with caution.

With this information, it can be stated that the geographical definition of local foods is determined by factors including the location of the customer and the producer, the (travel) distance between them, surrounding terrain, and the population density of the consumers community and neighboring communities.

#### Sustainability

Besides the connection of locality with geographical location, there are also relevant factors that contribute to the definition on a different level, including the way that the crops are grown. In some areas, a substantial route to sell local foods is through farmers markets. Due to that connection, local foods can sometimes also be interpreted as "sus-

#### **Review of literature**

tainably" grown (Thompson, Harper, & Kraus, 2008). Sustainable food refers to a chain where the health of the environment and economic viability both play an important role (Shreck, Getz, & Feenstra, 2006). The National Campaign for Sustainable Agriculture has described the sustainable food system as "economically viable, environmentally sound, socially just, and humane" (Magdoff, 2014). But just like not all sustainable foods are local, not all local foods are sustainable. However, the assumption could be made that both customers and farmers that take the origin of foods close to heart and sell to a more niche local market, could also be more invested in the way food is grown.

#### Food chain length

Aside from the food itself, locality can also be related to the length of the food chain. The whole idea behind local foods also includes the personality and ethnics of the farmer, and the "story behind the food" (Martinez, 2010). Since local foods are often found to be provided by smaller farms, there is some sort of social relationship and embeddedness in the local food system. A short food chain can contribute to creating a sort of connection between farmer and consumer by providing clearer specifics related to the food growth and its origin (Marsden, Banks, & Bristow, 2000). As a byproduct, a feeling of community is created between the local citizens and the producers.

### **1.3.2** Benefits of local foods

Local foods provide various benefits over global foods in multiple sectors, including but not limited to environmental and economical. However, since the definition of local foods can be a bit of a grey area as seen in section 1.3.1, not all of these factors can be weighed the same. For example, lowering transport emissions is a bigger benefit when the farm is multiple hours away compared to 20 minutes. In this section, an overview will be given of a range of benefits that local foods can bring.

#### Environmental

As described in section 1.3.1, local foods are often connected with sustainability, while it's a vastly different subject. However, there are areas where local foods have potential to be more sustainable than global foods. One that comes to mind immediately is related to the location: transport. One would say that less miles traveled equals less emissions, but that is not necessarily true. The emissions are influenced by a number of other factors as well, including the road structure, vehicle and fuel types, weight loads of vehicles, return hauls and product perishability (Soysal, Bloemhof-Ruwaard, & Van Der Vorst, 2014). A reflection of that can be observed in the available logistics models focusing on emissions.

Where some focus on the amount of fuel used during a trip, others report results on the emissions per weight load (Ubeda, Arcelus, & Faulin, 2011; Minx et al., 2009). For local foods, these factors are all important, because not every local produce has lower emissions. A good example is written by Ritchie (2020), who reported that shipping one kilogram of avocados from South America to Europe generates around 2.5 kilograms of  $CO_2$ , of which 0.3 kilograms are transport related, while one kilogram of locally produced beef will produce around 18 kilograms in  $CO_2$  at the minimum, without any transport. One could state that in these cases what you eat is more important than where it is from if one wants their food to have a smaller carbon footprint. While transporting, a lot of logistical decisions have to be made to make sure the food is still at its most optimal state when arriving – for beef, think of the shelf life, juiciness, tenderness, nutritional value and appearance (Delmore, 2009). When looking at fruits and vegetables however, it can be observed that the transport becomes a bigger chunk of the total amount of gases emitted. In a study that took place in the United Kingdom, a comparison was made between the effects of local and imported food on global warming potential. For every non-meat produce researched (tomatoes, strawberries, potatoes and apples), the transport emissions were between 30 and 70% of the total amount of emissions originating from seed to store (Webb, Williams, Hope, Evans, & Moorhouse, 2013). They also showed that for apples and potatoes, the  $CO_2$  emissions for the whole process together was lower for the local variant than for the imported one. A similar case is described in Striebig, Smitts, and Morton (2019), where tomatoes, lettuce, strawberries and chicken were imported from Florida, California and Arizona into Virginia. The tomatoes, lettuce and strawberries had the lowest overall  $CO_2$  transport emissions, while local chicken produced more  $CO_2$ during transport than any of the imported fruits and vegetables. While most of the emissions originate from the process of raising the chickens, the housing, packaging and slaughtering rank as third, fourth and fifth for demanding the most energy (Striebig et al., 2019). In short, depending on the product, way of transportation and location, limiting the amount of transport of food can significantly decrease the gases emitted, but is not something that is always blindly the case.

Diving further into the specifics of the impact of different foods, one needs to ask themselves where the food is grown, and the ideal circumstances for that produce. The addition of greenhouses and use of pesticides in non-ideal growth environments also take their toll on the environment. In Iran, a study was conducted comparing greenhouse grown strawberries with ones grown in an open field. Transportation and post-harvest processes were not taken into account here. Considering the amount of energy needed to fertilize the crops and distribute pesticides where needed, the open field resulted in

15% less global warming potential compared to the greenhouse product (Khoshnevisan, Rafiee, & Mousazadeh, 2013). An important side note here is that the open field was an ideal location to grow strawberries, meaning this might not be the case in more average areas. The same type of results can be seen in other research, where it was shown that because strawberries need more work in less ideal locations like the United Kingdom, growing them there results in more emissions (Webb et al., 2013). Foods that do not need to be grown in a greenhouse contribute the most to emission reductions, like potatoes and apples (Webb et al., 2013). When Clune, Crossin, and Verghese (2017) analyzed tens of papers on food produce emissions, they concluded that the three categories with the lowest  $CO_2$  emissions were root vegetables, field grown vegetables and field grown fruits. But even within greenhouses there are a lot of differences. When comparing older greenhouses heated with kerosene with newer ones fitted with heat pumps, the hourly  $CO_2$  emissions were 2-3 times lower, while also using half the amount of energy with a higher energy efficiency of up to 2.6 times (Tong, Kozai, Nishioka, & Ohyama, 2012). In the research, it is hard to recognize the type of greenhouse being used through the data. It can be said that field grown vegetables and fruits are a safe bet for low  $CO_2$  emissions.

There are also lots of vegetables, fruits and livestock that get imported and exported by the same country. In the Netherlands, a good amount of information is present on that. In 2020, the Netherlands imported more than 41 thousand tons of garlic, while also exporting over 34 thousand tons (Boon, 2020c). In 2019, there was over 19 thousand tons of fresh mushrooms imported, and 60 thousand tons exported (Boon, 2020b). This could be due seasonal availability and trends, or variations in supply. Overall, in 2019, the Netherlands imported almost 7 million tons of fresh fruits and vegetables, while exporting more than 9 million tons (Boon, 2020a). Knowing the origins of your food can cut down on transport emissions when choosing for a local alternative.

#### Local economy and community

And that local alternative could support your local farmer. In 1978, Goldschmidt wrote an article where he expressed his concerns about the shift from local produce to a more global industrialized agricultural world (Goldschmidt, 1978). He hypothesized that this shift would cause an uneven power balance within communities, as well as creating tension in the economical system. By studying multiple towns in California, he accepted his hypothesis when seeing that in places where corporate agriculture had a dominant presence, laborers were paid a lower wage and the relations between producers and the communities were more unstable. In 2022, this trend has somewhat continued, where producers and farmers cannot come to agreements anymore with supermarkets about pricing (*Lege* 

#### **Review of literature**

Schappen: Supermarkten en leveranciers Ruziën over Prijzen, 2022). Supermarkets do not want to pay the prices that the producers request, resulting in the absence of specific products or brands ever so often. However, over the years, customers have become increasingly aware of these side effects of corporate and industrialized agriculture and are more mindful when it comes to the health, quality, freshness and sustainability of their food (Feenstra, Lewis, Hinrichs, Gillespie, & Hilchey, 2003). With this, a local food movement has emerged to spread consciousness about these factors (Belliveau, 2005), of which one is to combat the decline in the well-being of rural communities and wanting to do their part in supporting the local farmers (Feenstra, 1997; Frash Jr, DiPietro, & Smith, 2015). When a shopping panel was asked what they found to be the most important characteristics of local producers, the number one and three spot went to family operated growers, and smaller independent growers and manufacturers (Lang et al., 2014). With this movement, it is attempted to be able to give farmers more money for their produce and create more bonding within the community by knowing exactly where the food originates from. Besides this potentially being a benefit for the farmer, it could also be beneficial for the customers purchase satisfaction, knowing they do their part in helping out a farmer in their community.

#### **Consumer expectations**

As described earlier in section 1.3.1, two ways to describe the locality of foods is by either mentioning transportation time or distance and sustainability. However, when looking away from factual definitions and more at how the consumers themselves interpret "locality", there is a vastly different set of attributes. There is a multitude of research conducted on the reasons why consumers buy local foods. Lang and Lemmerer (2019) conducted research focused at the most important factors for consumers to buy local foods, or to visit restaurants that offer dishes prepared with local ingredients. The most important factors turned out to be a desire for fresher ingredients, better tasting meals and higher quality of food (Lang & Lemmerer, 2019). Fresher ingredients can be factually correct as discussed in section 1.3.2 – the shorter travel time and distance makes it possible that the ingredients arrive at the consumer quicker without the need of a faster means of travel like by plane. For these fresher ingredients, consumers are willing to pay more, and also pointed out that the taste and community was very important to them (Frash Jr et al., 2015). Taste however, is an attribute that is found to be the most important in all categories of food, so that is not very surprising (Maehle, Iversen, Hem, & Otnes, 2015). Campbell, DiPietro, and Remar (2014) also confirms the expectation of consumers for local food to be fresher than global foods, but also higher quality, more nutritious and better tasting. Because of these factors, they felt that they could justify the potential

higher price. Durham et al. (2009) discovered in a survey that freshness, quality and supporting the local economy were found to be important factors. Regarding the "higher quality" expectations, there are arguments for and against it. On the one hand, vegetables and fruits that are going to be transported globally need to be picked earlier, to prevent it over-ripening on the journey, which has impact on the flavor and the nutritional potential (Gruchy, 2019). On the other hand, they were potentially grown in areas native to the produce, which could provide better produce.

As described earlier in section 1.3.2, sometimes local foods can be confused with sustainable, and to some extent also organic. In a study conducted in Denmark, it was found that positive perception of organic products affects the preference for locally produced apples positively (Denver & Jensen, 2014). It was again found that taste was among the most important factors when it came to choosing an apple, and that the participants were willing to pay a premium for local produce. This willingness to pay was even amplified if there was a positive perception of organic products.

What can be interpreted from this research, is that a lot of the attributes important to consumers for buying and eating local foods are personal and social values. In a survey targeting restaurant visitors, the practice of a restaurant to "buy locally" was found to be the primary attribute of importance due to the positive attitudes towards the environment, animal welfare, food quality, food safety and personal health (Lillywhite & Simonsen, 2014). One counter intuitive attribute is that some consumers expect local foods to be cheaper, even though they are not against paying a higher price for them. It is shown however, that that is not found to be a very important factor (Lang & Lemmerer, 2019)). It is clear to see that the expectations from customers are broad when it comes to local food. However, the expectation of good food and a positive impact on the environment and community around them are definitely factors that keep appearing.

## 1.4 Consumer decision-making

In the field of consumer decision making, there are a variety of models available, where each model has their own goal and look on the process. The goal of this section is to find a model that fits the goal of this paper optimally. Three models were chosen to be investigated further, namely the Buyer Decision Process Model (Kotler & Armstrong, 2010), the Theory of Planned Behavior Model (Ajzen, 1985) and the Consumer Decision Process Model (Engel, Blackwell, & Miniard, 2005).



#### Figure 1.2: Buyer Decision Process Model by Kotler, 2010

#### 1.4.1 Buyer Decision Process

One model widely used in emperical research is the Buyer Decision Process Model by Kotler and Armstrong (2010). This model assumes that there are 5 stages that the buyer goes through when deciding they want to purchase a product, as can be seen in Figure 1.2.

The first phase is the problem recognition, where the need for a product gets determined by stimuli (the need for transport, hungriness, etc). However, in the case of purchasing food, the stimuli does not always have to be hungriness. It could also emerge from wanting to eat as a social event, or maybe even out of boredom.

In the second phase, the consumer starts looking for information on how they could solve their problem. In the case of hungriness, the information search will be focused on finding out where one could find food. This information could be gathered from sources in ones direct social circle like family, but also external sources like advertisements or other environmental cues.

In the third phase, the consumer starts weighing their different options and alternatives. The choice of alternatives and the attributes that are compared differs from person to person. Interesting to note is that according to Kotler, external factors do not play a role here, but later at the purchase decision phase.

In that phase, there are some external factors in play that could still make the consumer decide to not go through with the purchase, like a change in budget, or influence of other peoples attitudes towards the choice or purchase.

In the post purchase behavior phase, the consumer decides if they are happy or unhappy with their purchase. The core of this model fits the outline for this paper, however there are some things potentially missing. At no point in the model does Kotler explain how the consumer chooses which sources are being used in the information search phase. On top of that, it seems that the external factors mentioned that could have influence on the purchase phase are somewhat limited.



Figure 1.3: Theory of Planned Behavior Model by Ajzen, 1985

#### 1.4.2 Theory of Planned Behavior

The Theory of Planned Behavior, or TPB model was introduced by Ajzen (1985). The TBP model functions on the foundation that attitudes, subjective norms, and perceived behavioral control influence the intention to perform a certain behavior. The model can be seen in Figure 1.3.

In the TPB, the attitude resembles how the social circle around the individual feels about a certain type of behavior. These are influenced by the behavioral beliefs and estimations of consequences of the behavior. The subjective norms are influenced by the normative beliefs, which are developed by the social circle around the individual. If there are certain actions that are looked down upon, or maybe praised, these could influence the subjective norm. It is then up to the individual to determine if they do or do not act on these norms. The perceived behavioral control describes the intention of an individual to commit to a certain behavior, however, is influenced by the control beliefs (these would be any subjective or objective reasons). This is a factor that Kothe and Mullan (2015) had critique on - they describe how the model is mainly useful if there already is a positive attitude towards a certain behavior. They also found potential cross relationships between the perceived behavioral control and the attitude, which is not mentioned in the model by Ajzen (1985). One of the limits of this model in the context of this paper, is that each factor is very broad and not as tailored to choice as the Buyer Decision Process Model by Kotler and Armstrong (2010).



Figure 1.4: Consumer Decision Process Model by Engel, Blackwell & Miniard, 2005

#### 1.4.3 Consumer Decision Process

The third model in question is the Consumer Decision Process Model by Engel et al. (2005), or the EBM model named after the authors: Engel, Blackwell & Miniard. The EBM model was originally introduced in 1978, consisting of 5 decision-making stages, but later built upon by Engel et al., turning it into 7 decision making stages to include more focus on individual and environmental influences.

The individual differences introduced by the EBM model are: consumer resources, motivation, knowledge, attitudes, personality, values and lifestyle. Environmental influences include culture, social class, family and situation. The Information Process column in Figure 1.4 visualizes how new external information is processed and how that is later called upon from memory when needed. Compared to the Buyer Decision Process Model by Kotler and Armstrong (2010), the EBM model states that the individual and environmental factors have influence on multiple stages in the decision making process. Another big difference is that it is believed that within this model, consumers can go back to previous stages if an unforeseen circumstance arises. They also point out that not every consumer has to go through all of the stages – this would depend on the complexity of the problem and their involvement levels (Engel et al., 2005).

The EBM model differentiates itself from the other models due to the fact that it points out the influence of external factors on the decision making steps. However, because of the same reason, the model has received critique for it being overly complex and using vague terminologies (Jacoby, 2002). The following 7 stages are included in the model:

#### Need Recognition

According to the EBM model, in this stage the consumer is becoming aware that they need something. A need develops itself when someone becomes conscious of that need, like noticing one is hungry. They would need to start looking for a way to feel satisfied and not hungry anymore. This stage is actively influenced by individual differences and environmental variables.

#### Search

When the consumer is hungry, they start looking for a way to get rid of that feeling: by eating for example. This search process can take place internally (in the memory, based on past experiences and gained knowledge over time) and externally (actively looking or being exposed to new information in the direct environment, in social circles, advertisements, etc.). All information of those two sources combined will make up the available consideration set. The amount of information that is gathered from these sources is influenced by the individual differences and environmental variables. When the consumer is exposed to stimuli containing new information, they go through 5 steps of information processing:

- Exposure: In this step, it is determined if the information reaches the consumer. In other words, they need to notice the information consciously or unconsciously. In line of the hunger example, they could see a billboard with a hot dog.
- 2. Attention: If the information can reach the consumer, it is determined how much processing capacity is being given to the piece of information, or how much attention is given to the content. The more interesting and relevant the information is, the more likely it is that the content will grab and keep the consumers attention. As described in section 1.2, it is possible for consumers to have "display blindness" in this stage, or to selectively ignore the content. In line with the example, the consumer would notice the billboard with a hot dog and look at the details.
- 3. **Comprehension:** The information needs to be comprehended, or in other words, it needs to be understood. For the hot dog billboard, they must understand that

the hot dog is food.

- 4. Acceptance: The information must be accepted, which according to Engel et al. (2005) does not happen most of the time. Before the information can be used to strengthen or modify the consumers existing beliefs or attitudes, this process must be successful. The acceptance in the hot dog example would be that the hot dog could be a potential solution to satisfy the consumers hunger.
- 5. **Retention:** If the information is accepted, it will be retained in the memory. Next time the consumer is hungry, they could think of a hot dog as a potential candidate to satisfy that need.

If this process is a success, the information will be added to the internal memory to be used in future deliberations.

#### **Evaluation of Alternatives**

In this stage, the available items in the consideration set are compared with each other with the goal to satisfy the need. Attributes like food categories, price, brands and nutrients are all being taken into consideration attached to their items (Engel et al., 2005). Per individual and based on the situation, the importance of each attribute can differ. Payne, Bettman, and Johnson (1991) presented research where they dove into the way that these attributes are compared. For example, how does one directly compare price versus healthiness? They introduced a list of different choice heuristics, or decision rules, to simplify the option consideration. Their 11 strategies are very interesting, but are out of the scope of this research so will not be presented here in detail. Researchers Chhabra and Olshavsky (1986) describe that different individuals can have strong preferences to specific choice heuristics which they will use more often than others. Another factor that is important in this stage is the decision complexity, as discussed prior. Bettman et al. (1998) introduced 6 factors that affect decision complexity and will be explored further below:

- Problem size: Bettman et al. (1998) proposed that an increase of the problem size will increase the decision complexity. It can be described as the amount of alternatives that could be evaluated within a given time frame. Correlated to the problem size is the amount of attributes that are given for each item. If there are too many options to choose from, information overload (section 1.2) could occur. The consumer could also potentially change their choice heuristic based on the problem size, which could affect the accuracy of choice.
- Time Pressure: The time that is available to make the decision. If time is limited,

the accuracy of the choice could decrease depending on the problem size and the attributes. The higher the time pressure, the more selective the consumer would be in their evaluation of alternatives. To make sure that it is still possible to make a choice within a given time frame, some attributes or even alternatives would be ignored consciously or unconsciously.

- Attribute correlation: Payne et al. (1991) show that when inter attribute correlations become more negative, choice heuristic accuracy decreases. This factor is a bit harder to grasp than the other ones but focuses on the influence of emotion-laden decisions on choice heuristics. For example, negative emotions could be elicited by having difficult attribute trade-offs during an emotional task.
- Completeness of information: Bettman et al. (1998) propose in their research that in an ideal situation, a consumer would possess all necessary information related to the alternatives and their attributes. However, not every alternative might have the same sort of information, or have completely different attributes. By not being able to find the information needed, decision complexity increases and the choice could become less accurate. This could also have influence on the choice heuristic used by the consumer.
- Information format: Payne et al. (1991) describes that if the information is presented in a more complex format to the consumer, their cognitive load would increase due to having more trouble processing it. A poster with a lot of text would cost a lot more cognitive load to process than a list of bullet points providing the same information. By making sure that the information is accessible in an understandable way, decision complexity can be kept manageable. Additionally, customers can have different amounts of interest in different kinds of formats, which could influence their decision (Ansari & Joloudar, 2011).
- Comparable versus non-comparable choices: This factor focuses on the type of choices that are available to base the evaluation of alternatives on. For example, if a consumer would have €100 available to spend on something "fun", they could choose for a vacation or a new pair of shoes. Both of these alternatives are completely different and have different attributes and are therefore non-comparable. Bettman et al. (1998) theorizes that these decisions are more complex than comparable choices, like choosing between a hot dog and a hamburger.

With these factors proposed by Bettman et al. (1998), it is possible to make sure all aspects of alternative evaluation are covered when setting up a study. In line with the example, in this stage the consumer would have weighed the hot dog against other available options that they found, like a hamburger or pizza.

#### Purchase

In this stage, the final choice is being made based on the previous stages. Engel et al. (2005) describes that at this point it is still possible to go back to the beginning of the process if new information comes to light, like suddenly seeing a new deal on a billboard, or when certain alternatives are not available for purchase anymore. In line of the example, the consumer would decide to buy a hamburger here, because they found from previous experience that they like hamburgers generally more than hot dogs.

#### Consumption

In the consumption stage, the consumer consumes the product.

#### Post Consumption Evaluation

In the post consumption evaluation stage, the consumer decides if the product they consumed was what they hoped for, and if they think that they made the right decision compared to the other alternatives from the earlier stage. An example would be, did the hamburger taste as good as they remembered, or did it taste like they thought it would based on the picture that was provided in the restaurant?

#### Divestment

Divestment is the last stage in the EBM model, where when the consumer is done with the product, they decide how to dispose of it, or recycle it. In the case of physical products, this could mean selling a bike once you don't need it anymore. For food, this could be deciding what you want to do with the leftovers of the hamburger that you could not finish – it could be thrown away or taken home for later.

## Chapter 2

## Framework

In this chapter, the hypotheses will be derived and insight will be given on how they will aid in answering the main research question. As discussed in chapter 1, a variety of decision making stages influence the end choice. The previously discussed EBM model stages will be used in combination with Bettman's choice factors as a backbone for the study designs (Engel et al., 2005; Bettman et al., 1998). This model was chosen due to the researchers preference for the more detailed decision making stages compared to the other reviewed models. These smaller stages assisted in creating more specified questions to address the wide spectrum of the decision making process. By deriving the hypotheses in this structured manner, it is possible to build a framework that can help giving insight into how different stages and variables theoretically interact with each other, and how the hypotheses relate to them.

The main research question for this paper is:

# RQ: To what extent do videos regarding food locality in online menu cards influence food choice?

To answer this, there are two areas that need to be explored, namely the *impact* of videos versus images and the *influence of video content regarding food locality*. In the first area, the focus will be on the differences between static and moving imagery. In the second area, it should be explored how different types of video content regarding food locality have influence on the choice of food. By splitting this up, two sub-questions can be formulated:

SQ1: To what extent do videos in online menu cards influence the process of choosing food? SQ2: To what extent does the type of video content regarding food locality influence food choice? To make sure each sub-question can be answered optimally, one study (chapter 3) will be conducted focusing on gathering data regarding SQ1, and a second one (chapter 4) for SQ2. Based on the information gathered in chapter 1, the EBM model in combination with Bettman's factors will be used as structure for Study 1 (Engel et al., 2005; Bettman et al., 1998). For Study 2, the structure will be designed by the researcher.

### 2.1 Study 1

In this section, the framework for the first study will be elaborated on. The goal of this section is to derive hypotheses that will aid in answering SQ1.

#### 2.1.1 Hypotheses

Below, the hypotheses for Study 1 will be derived in the context of the different EBM model stages.

1. Need Recognition: Since it is assumed that the consumer has already decided that they would like to consume some food for this research, no hypothesis will be constructed for this stage.

2. Search: This will be researched based on the internal information processing factors as described by Bettman et al. (1998). *Exposure* will not be taken into account as a factor, since all participants would exposed to the content in front of them in the experiment. *Attention* will be measured to confirm if videos do attract attention, like the literature research suggests. *Comprehension, Acceptance* and *Retention* will not be measured, due to limitations in writing time for this paper, and the assumption that due to the way the study will be prepared, these will not form critical factors for this research. Based on this, the following hypothesis is:

H1: Videos in online menu cards draw attention.

3. Evaluation of alternatives: Based on the attributes proposed by Bettman et al. (1998), this stage will be researched. *Problem size* will not be taken into account, since in the experiment, all participants will be served an online menu with the same problem size. *Information overload* should be measured, to make sure the problem size is not too big, and the content does not negatively influence the decision process. *Time pressure* will be measured to find out if videos cause any feeling of additional time pressure. *Attribute correlation* will not be measured, due to the heavy focus on emotional



Figure 2.1: Research Model for Study 1, based on the Consumer Behavior Model by Engel et al., 2005

state when evaluating the alternatives, which is out of the scope of this research. *Completeness of information* will be measured, to see if the information needed is still being found by the participants. *Information format* will also be measured, to get a better insight in the difference in user experience between videos and images. *Comparable versus non-comparable choices* will be measured to check if including videos within a image environment will not cause difficulties comparing the two. Based on this, the following hypotheses are proposed:

H2: Videos in online menu cards aid in the evaluation of alternative food items.

H3: Videos in online menu cards reduce the complexity of choosing food.

4. Purchase: In this stage, the actual *choice of food* will measured. Based on this, the following hypothesis is proposed:

H4: Food items that feature a video have a higher purchase intention compared to food items featuring a static image.

5. Consumption / Post consumption and Divestment: This will not be measured in this study due to the fact that no physical foods will be provided in the experiments.

In total, 4 hypotheses were derived to answer SQ1. How they interact with each other and with the different EBM model stages, can be seen in Figure 2.1.





## 2.2 Study 2

Whereas SQ1 and its hypotheses focus on the overall effects of the influence on videos compared to imagery, the goal of this study is to experiment with food locality content shown in the videos on online menu cards, and find out how they can be used to influence food choice.

### 2.2.1 Hypotheses

Based on the research in section 1.3.2, it was found that sustainability and tastiness were two factors that were rooted in the consumers definition of local foods. Based on that, the following hypotheses are proposed:

H5a: Food items that feature video content stating the food is sustainable are perceived to be more sustainable than food items that don't feature that video content.

H5b: Food items that feature video content stating the food is tasty are perceived to be tastier than food items that don't feature that video content.

H6a: Purchase intent is higher for food items that consumers perceive to be sustainable.

H6b: Purchase intent is higher for food items that consumers perceive to be tastier.

H7a: Consumers that find the sustainability of their food important have a higher purchase intent for food items which are perceived to be more sustainable.

*H7b:* Consumers that find the tastiness of their food important have a higher purchase intent for food items which are perceived to be more tasty.

Based on the hypotheses derived, a visualization was made to show how the test variables and hypotheses are related to each other, which can be seen in Figure 2.2.

## Chapter 3

## Study 1: Videos versus Images

To attempt to answer the first sub research question, a study will be conducted to obtain data. In this chapter, the process and results of this study will be showed.

## 3.1 Methodology

The function of this section is to elaborate on the design of the experiment conducted to answer SQ1 and its hypotheses.

### 3.1.1 Research Design

For this study, it was chosen to expose a single group of participants to an online menu mock-up followed by a survey. By using a within-group study design, it was possible to confront every participant with multiple media formats, and get every participant to choose between images and videos. The focus of these studies is on online food ordering platforms, where consumers order from the comfort of their home. Since the setting of participants homes is varied, it was chosen to conduct this study through an online survey design instead of, for example, a physical study in a controlled environment. Additionally, there are a lot of other factors in play that are challenging to control in both an online or physical setting. While some factors like hungriness can be measured, every participant would have their own eating schedule, the hungriness would change throughout the day while conducting the experiment, participants could have eaten just before the experiment, etc. It was chosen to conduct the study on the survey platform Qualtrics.

It was decided to conduct this experiment in Dutch, due the nature of exploring around food locality in Study 2, and attempting to keep the core of the studies consistent.
Gender	N	%
Male	79	52.7%
Female	69	46.0%
Non-Binary	1	0.6%
Unknown	1	0.6%

 Table 3.1: Study 1's descriptives of participants gender

Age Group	N	%
18 - 20	18	12.0%
21 - 30	85	56.7%
31 - 40	25	16.7%
41 - 50	15	10.0%
51 - 60	2	1.3%
61 - 70	3	2.0%
71 - 80	1	0.7%
Unknown	1	0.7%

 Table 3.2:
 Study 1's descriptives of participants age groups

With the information gathered from Chapter 1, it was already decided that Study 2 was going to be conducted in Dutch due to the geographical sensitivity of local food definitions – more information on the decision process on that can be found in Chapter 4. Since results from Study 1 will be used to construct Study 2, it was decided to conduct this study in Dutch as well to minimize any risk that results might be different in other regions of the world.

## 3.1.2 Participants

To find participants for the study, the online platform Prolific was used. In the recruitment process, it was required that the participants had a Dutch nationality and Dutch set as their first language on their profile. It was also required that participants could complete the experiment on a desktop PC to eliminate any potential issue with video sizing on mobile devices. Participation was completely voluntary and due to the nature of Prolific, participants received a monetary compensation for their time. The group size for this experiment was set to 150 participants.

The representation of gender and age groups are shown in Table 3.1 and 3.2.

Completing the study was estimated by the researcher to take eight minutes (480s) to complete. In practice, participants spent between 1:28 (88s) and 16:32 (992s) ( $\mu = 3:54$  (234s), SD = 2:25 (145s)) on completion.

## 3.1.3 Mock-up Design

A variety of decisions were made when constructing the mock-up online menu card to remove as many biases as possible and maximize the user experience.

### Presentation

The menu set-up consisted of 6 different food items that the participant could choose from. The researcher deliberately chose for 6 different food items because of the following reasons.

It was important for this study to find a balanced amount of food choices – enough for the participant to actually have choices to choose from, but not too many to result in *information overload*. Due to the nature of videos, having too many on the screen at one time, especially when scrolling through a page, can become confusing and disorienting. This could potentially alter the results, which is not desirable. Because of this, a set of requirements were constructed by the researcher. The choice was made that there should at least be three categories of dishes, namely *meat*, *fish* and *vegetarian*. To make sure that every participant that is only interested in one of the three categories always has a choice, it was determined that there should at least be *two dishes per category*.

One of the goals of this study was to find out if participants were more likely to choose for a dish with a video compared to one with a static image. To remove as many presentation biases as possible, the following requirements were set for the menu card order logic:

- Half of the presented food dishes must be in video format, and the other half a static image.
- For every food category *(meat, fish, vegetarian)*, half of the options should be presented in video form, the other half as static image.
- Within every food category (*meat, fish vegetarian*), which of the dishes is displayed as video and which as static image should be determined at random for each participant.
- The order of all presented dishes must be randomized to remove any potential response order bias (Krosnick & Alwin, 1987).

To maintain the requirement that half of the food dishes from each category must be presented in video format and the other half as a static image, the next possible choice would be to present 4 dishes per category, with a total of 12 dish choices. In the process

Category	Food item
Moot	Turkey Skewer (Kalkoenspies)
meat	Pepperoni Pizza (Pepperoni Pizza)
Fich	Salmon Filet (Zalmfilet)
FISH	Fish & Chips (Fish & Chips)
Vagatarian	Vegetarian Ravioli (Vegetarische Ravioli)
vegetarian	Vegetarian Burger (Vegetarische Burger)

 Table 3.3: Study 1's list of food item choices in their respected category.

of making the mock-up, the researcher decided that with having 12 dish choices, the risk for confusion and information overload would be too high, and thus a list of 6 was chosen. The following variety of food items were presented to the participants:

To minimize any location-based bias, the order of the food items was randomized for each participant. To minimize any specific food item preference bias, the state of the food items (static or video) was also randomized for each participant. The logistics built into the set-up made sure to always present the participant with 3 static images and 3 videos. Additionally, for every food category (meat, fish, vegetarian), 1 of the 2 options would be a static image, and the other a video. For all randomization, Qualtrics' built-in random number generator was used.

### Visuals

All images were made to be the same size, designed within the same color spectrum, same art style, given the same background and the same style of animation. Due to the length of online menus and variety of device resolutions that present them, it cannot be guaranteed that a participant sees the full video, as it is possible that they scroll past. On top of that, it was decided to be very important that the video contained the same information as the static image version. Throughout the whole video loop, there should always be some form of movement present in the video to make sure the participant would not confuse it with an image if they glanced over. This was accomplished by giving the background a looping linearly moving icon pattern. For the static image variant, this pattern was static. The pattern can be seen in Figure 3.1.

Figure 3.1: Study 1's template for animated background banners



The foreground existed of two elements: a designed image of a plate of food and a dish title. The animation of the plate of food contained a linear slide-in from the left hand side of the banner, minimal bounce effects of the ingredients on the plate, and a fade out. The animation of the title contained a slide-in from the bottom of the image, minimal vertical scrolling and a fade out. For the static image, the plate of food was positioned where the slide-in ended, and the title was vertically centered. The template of the banners can be seen in Figure 3.2, and one of the final images can be observed in Figure 3.3

Figure 3.2: Study 1's template of a full banner.



Figure 3.3: Study 1's example of a finished banner: Vegetarian Burger



For the visuals, it was decided to not include any price tags for the food items in this experiment to minimize any bias based on cost and value for money. Since the amount of 6 different food items is not comparable to most modern-day restaurant offerings, it was decided to not include a list of specific ingredients for every dish. Even though taste preference and allergies cannot be fully eliminated from this experiment, this attempt was made to minimize extra factors that would limit participants choices.

The videos were implemented in a .GIF format, due to the high level of browser support, the automatic looping feature of GIFs, and the absence of any potential play/pause or time scrubbing timeline features in some browsers. Each video was a total of 10 seconds long and looped automatically when finished.

The layout of the digital menu was inspired by a combination of two major digital food ordering platforms in the Netherlands: *UberEats* and *Thuisbezorgd*.

## 3.1.4 Experiment Procedure

The experiment started with an explanation about the study and informed consent. In the introduction, a short explanation was given about what the participants were about to see, and that they would have to fill out some questions afterwards. It was made clear that they would be presented with a menu card containing moving imagery, but that the movements were subtle and there were no fast changing colors. This was mentioned to make sure participants sensitive to flashing imagery would be able to make an informed decision about their participation. After explaining the steps that they would go through, the participants had the option to either agree or disagree with the terms and conditions. If a participant did not agree, they were sent to the end of the survey and their submission was removed. If they agreed, the experiment would continue. After consent was given, they were asked to fill in their gender, age, their frequency of usage of digital menu cards, and their current hungriness.

Following the questions, a more precise introduction was given about what the participants were about to see and do. It was explained that they would see a digital menu card, and to treat it like one they would encounter on a digital food ordering platform or in a restaurant. In the remainder of the survey, the word *video* would be used to describe the moving imagery in the menu card. To avoid confusion, it was stated that the word *video* would be aimed at the **GIFs**. Participants were asked to take a good look at the menu card, and to then continue to select a food item of choice.

The participants where then presented with the menu card consisting of 6 dishes where they could choose from. After choosing one, they could continue. Following, they would be presented with 17 questions and 1 text box to give an optional remark or extra comment.

## 3.1.5 Measures

One main dependent variable measured in this survey was the choice of visuals (static image vs. video). Most items were measured on a 7-point Likert scale. First, the participants were requested to answer general questions regarding their Gender (male, female, other, prefer not to say) and their Age. They were then asked to answer questions about their digital menu usage frequency (1 = "Nooit" (Never) to 7 = "Heel vaak" (Very often)) to get insight into their familiarity with digital menu cards, and their current hungriness measured from 1 = "Heel vol" (Very full) to 7 = "Heel hongerig" (Very hungry). The item to measure hungriness was taken from Salmon, Fennis, de Ridder, Adriaanse, and De Vet (2014) and translated to Dutch.

The next group of questions followed the *EBM model* (Engel et al., 2005), supported by Bettman's constructs (section 1.4.3), to answer *H1*, *H2*, *H3 and H4*. The following questions were measured on a 7-point Likert scale with labels ranging from: 1 = "Helemaal niet mee eens" (Strongly disagree) to 7 = "Helemaal mee eens" (Strongly agree).

Participants were presented with a 5-item question measuring *attention* for the Search stage, of which 3 items were inspired by Peters (2011) research and translated to Dutch. For the Evaluation stage, *time pressure* was measured with a 2-item question, *completeness of information* with a 2-item question, *influence of the information format* with a 3-item question (of which 2 items were inspired by Peters (2014) research), and *comparability of choices* with a 2-item question (of which 1 item was inspired by Peters (2014) research). Their *food choice* was measured by recording the selected food item on the menu card.

To check whether the amount of food choices did not overwhelm the participants, information overload (Payne et al., 1991; Malhotra, 1982) was measured with a 2-item question. To check whether they would have normally chosen the same type of dish as they chose today, their *habit* was measured with a 1-item question. After that, there was the option to leave a comment regarding their choice or to give feedback on the survey. These comments will not be actively analysed, but will be used to give extra insights for the discussion and limitations section. All comments can be found in Appendix A, and an overview of the specific questions per construct can be seen in Table 3.4 and 3.5

The biggest goal of this study was to find out whether videos have an influence on the choice of food. Since this experiment was conducted within a single group, there was no comparison material with a second group. All measures were filled out by the participants themselves, and could therefore only be matched with their choice for a static image or video. While this would not give a direct comparison between the two, it would give a good insight into which factors potentially play a role in their choice.

## 3.1.6 Data analysis

The data was exported from *Qualtrics* and analyzed using the *IBM SPSS 28* statistics software. Two items were reverse scored: Attention construct (ATT)-2 and ATT-4.

To analyse the data obtained from Study 1, different kinds of statistical analyses were used. To test for internal consistency of the constructs with three or more items, *Cronbach's alpha* was used (Cortina, 1993). For constructs with two items, the *Spearman-Brown Coefficient* was used to measure reliability between the items. Eisinga, Grotenhuis, and Pelzer (2013) showed the differences in reliability between Cronbach's Alpha and the

EBM Stage	Hypotheses	Bettmann's	Code	Item
		Construct		
			ATT-1	De video's op het scherm trokken mijn
				aandacht.
Search	HI: VIGEOS IN ONLINE MENU	Attention	ATT-2	Ik heb geen video's op het scherm gezien.
	cards draw attention.		ATT-3	Mijn blik bleef richting de video's gaan.
			ATT-4	Ik vond het makkelijk de video's te
				negeren.
			ATT-5	Ik wilde alle video's bekijken.
			TP-1	Het voelde alsof ik genoeg tijd had om
	H9. Widood in online moni	a mesand ann t		mijn keuze te maken.
	112. Videos III OIIIIIe IIIeilu sarda aid in the avaluation of		TP-2	Het voelde alsof de video's me hielpen mijn
	catus and in the evaluation of alternative food itoms			keuze sneller te maken.
Evaluation	atternative rood items. H3. Vidoos in online monit	Completeness of	COI-1	Ik kon alle informatie vinden die ik wilde
	113. Videos III UIIIIIe IIIeilu aanda madiiaa tha aamulanitu of	information		vinden.
	cards reduce the complexity of $\frac{1}{2}$		COI-2	Ik vond het makkelijk om de informatie te
	choosing lood.			vinden die ik zocht.
			IF-1	Ik vond het interessant om naar de video's
		Information for-		te kijken.
		IIIat	IF-2	De video's maakten het makkelijker om
				mijn keuze te maken.
			IF-3	Ik vond het verleidelijk om voor een
				gerecht met video te kiezen.
		Comparability	COM-1	Ik heb meerdere opties overwogen voordat
		Compar approved		ik mijn eindkeuze maakte.
			COM-2	Ik vond het makkelijk om de video's te
				vergelijken met de plaatjes.
	H4: Food items that feature			
	a video have a higher pur-			
Choice	chase intention compared to		PC	The selected food choice.
	food items featuring a static			
	image.			
Independent	variable: Visual format (video	vs. $static$ )		

**Table 3.4:** EBM Stages & Bettmann's constructs used for Study 1 with their respectiveitems.

Covariates	Code	Item
Gender	GENDER	Wat is je geslacht?
Age	AGE	Hoe oud ben je?
Digital menu usage	USAGE	Hoe vaak je gebruik je een digitale menukaart
		in een restaurant of op een maaltijd bezorg-
		platform?
Hungriness	HUN	Hoe hongerig voel je je op dit moment?
Habit	HAB	Normaal gesproken zou ik een zelfde soort
		gerecht kiezen als ik vandaag heb gekozen.
Information overland	IO-1	Er waren te veel gerechten om uit te kiezen.
mormanon overioau	IO-2	Ik voelde me overweldigd door de keuzes.

Table 3.5: Covariates of study 1 with their respective items

Spearman-Brown coefficient for two-item scales, and noted that using Cronbach's Alpha could underestimate the true reliability, whereas the Spearman-Brown coefficient was less biased on average. To be able to assume a good inter-item reliability, it is common that the Cronbach's alpha and Spearman-Brown coefficient score should exceed .7, however, scores of .6 or lower have been accepted in some cases in the field of psychology (Cortina, 1993). In analyses where it was intended to test whether the population mean was different than a hypothesized or specifically set mean, and the dependent value was continuous, one-sample t-tests were used. In cases where the independent variable contained multiple categorical groups and the dependent variable was a continuous value, independent-samples t-tests were conducted. The goal of the independent-samples t-tests is to determine if there is a statistically significant difference between these IV groups.

To be able to assume if there was normality in the data, visual assessments of *normal* Q-Q plots were conducted.

To check for homogeneity of variances in data, Lavene's Test of Equality of Variances was used (Brown & Forsythe, 1974). If Lavene's Test of Equality of Variances is p < .05, the variances are significantly different and homogeneity can not be assumed.

## 3.2 Results

In this section, the results of the study are presented. Two participants were filtered out due to missing data. Two participants were filtered out due to the fact that their comments or answers indicated that they were not able to see any videos. Due to the fact that it is possible that there were technical difficulties and all survey questions refer to the videos, it was decided to exclude these participants from further analysis. One participant was filtered out due to suspicious combinations of answers (was not able to see any videos, however found them interesting to look at), combined with an extremely fast survey completion time. After subtraction, the total amount of analyzed participants was 145.

### Reliability

In Table 3.6, the descriptives of the independent items can be seen for the constructs and their  $\alpha$  values.

ATT-1, ATT-2, ATT-3, ATT-4 and ATT-5 were tested for reliability with Cronbach's alpha, resulting in  $\alpha = .756$ . We can assume there is inter-item reliability to measure attention. However, it was decided to filter out ATT-2 due to the question being more ordinal than nominal (you either see videos or you do not). By doing this, it was possible to obtain a higher Cronbach's alpha of ( $\alpha = .798$ ).

Completeness of Information construct (COI)-1 and COI-2 were tested for reliability with the Spearman-Brown coefficient, resulting in an inter-item reliability of  $\alpha = .927$ . It was assumed that these items are reliable together.

Information Format construct (IF)-1, IF-2 and IF-3 were tested for reliability with Cronbach's alpha, resulting in  $\alpha = .864$ , and were therefore assumed to have a good inter-item reliability.

The Spearman-Brown Coefficient was measured on items Comparability construct (COM)-1 and COM-2, resulting in  $\alpha = .184$ , which was not enough to assume there is any inter-item reliability. Since item COM-2 is a very literal question to interpret the comparability construct, that item was be kept. COM-1 was ejected from measuring the construct.

To measure reliability in the Information overload construct, the Spearman-Brown coefficient was determined on items Information Overload construct (IO)-1 and IO-2, with a result of  $\alpha = .766$ . For these items, it was accepted that there is inter-item reliability, and thus these items stayed grouped together for further analysis.

Time Pressure construct (TP)-1 and TP-2 were not tested for reliability, due to the nature of the questions. TP-1 was set-up as a controlling question because there was no time limit or timer visible for the participants. However, since the survey was held on a paid platform where they would be paid a flat fee, there might be some time pressure for the participants to make sure they got the most payment per minute. TP-2 was left as a singular item to measure the *time pressure* construct.

Item	Mean	$\mathbf{SD}$	$\alpha$
ATT-1: De video's op het scherm	5.51	1.231	
trokken mijn aandacht.			
ATT-2: Ik heb geen video's op het	6.88	0.433	.756
scherm gezien. (INV)			
ATT-3: Mijn blik bleef richting de	4.63	1.585	
video's gaan.			
ATT-4: Ik vond het makkelijk de	3.95	1.717	
video's te negeren. (INV)			
ATT-5: Ik wilde alle video's beki-	4.39	2.045	
jken.			
COI-1: Ik kon alle informatie vinden	4.73	1.676	007
die ik wilde vinden.			.927
COI-2: Ik vond het makkelijk om de	4.93	1.508	
informatie te vinden die ik zocht.			
IF-1: Ik vond het interessant om	4.51	1.655	
naar de video's te kijken.			.864
IF-2: De video's maakten het	3.52	1.688	
makkelijker om mijn keuze te			
maken.			
IF-3: Ik vond het verleidelijk om	3.88	1.814	
voor een gerecht met video te kiezen.			
COM-1: Ik heb meerdere opties	5.77	1.189	
overwogen voordat ik mijn eind-			.184
keuze maakte.			
COM-2: Ik vond het makkelijk om	4.88	1.507	
de video's te vergelijken met de			
plaatjes.			
IO-1: Er waren te veel gerechten om	2.32	1.301	
uit te kiezen.			.766
IO-2: Ik voelde me overweldigd door	2.03	1.202	
de keuzes.			
	Item ATT-1: De video's op het scherm trokken mijn aandacht. ATT-2: Ik heb geen video's op het scherm gezien. (INV) ATT-3: Mijn blik bleef richting de video's gaan. ATT-4: Ik vond het makkelijk de video's te negeren. (INV) ATT-5: Ik wilde alle video's beki- jken. COI-1: Ik kon alle informatie vinden die ik wilde vinden. COI-2: Ik vond het makkelijk om de informatie te vinden die ik zocht. IF-1: Ik vond het interessant om naar de video's te kijken. IF-2: De video's maakten het makkelijker om mijn keuze te maken. IF-3: Ik vond het verleidelijk om voor een gerecht met video te kiezen. COM-1: Ik heb meerdere opties overwogen voordat ik mijn eind- keuze maakte. COM-2: Ik vond het makkelijk om de video's te vergelijken met de plaatjes. IO-1: Er waren te veel gerechten om uit te kiezen. IO-2: Ik voelde me overweldigd door de keuzes.	ItemMeanATT-1: De video's op het scherm trokken mijn aandacht.5.51ATT-2: Ik heb geen video's op het scherm gezien. (INV)6.88ATT-3: Mijn blik bleef richting de video's gaan.4.63ATT-4: Ik vond het makkelijk de video's te negeren. (INV)3.95ATT-5: Ik wilde alle video's beki- jken.4.39COI-1: Ik kon alle informatie vinden die ik wilde vinden.4.73COI-2: Ik vond het makkelijk om de informatie te vinden die ik zocht.4.51IF-1: Ik vond het interessant om naar de video's te kijken.3.52IF-2: De video's maakten het makkelijker om mijn keuze te maken.3.88voor een gerecht met video te kiezen.5.77COM-1: Ik heb meerdere opties overwogen voordat ik mijn eind- keuze maakte.5.77COM-2: Ik vond het makkelijk om de video's te vergelijken met de plaatjes.4.88IO-1: Er waren te veel gerechten om uit te kiezen.2.32IO-2: Ik voelde me overweldigd door de keuzes.2.03	ItemMeanSDATT-1: De video's op het scherm trokken mijn aandacht.5.511.231ATT-2: Ik heb geen video's op het scherm gezien. (INV)6.880.433ATT-3: Mijn blik bleef richting de video's gaan.4.631.585ATT-4: Ik vond het makkelijk de video's te negeren. (INV)3.951.717ATT-5: Ik wilde alle video's beki- jken.4.392.045COI-1: Ik kon alle informatie vinden die ik wilde vinden.4.731.676COI-2: Ik vond het makkelijk om de informatie te vinden die ik zocht.1.5081.508IF-1: Ik vond het interessant om naar de video's te kijken.3.521.688IF-2: De video's maakten het maken.3.521.688IF-3: Ik vond het verleidelijk om voor een gerecht met video te kiezen.3.881.814Voor een gerecht met video te kiezen.5.771.189OV-2: Ik vond het makkelijk om de video's te vergelijken met de plaatjes.4.881.507IO-1: Er waren te veel gerechten om uit te kiezen.2.031.202de keuzes.2.031.2021.202

**Table 3.6:** Study 1 item means, standard deviations and  $\alpha$  value.

 Table 3.7:
 Study 1 attention construct descriptives.

	N	M	SD	t	p
Attention	145	4.619	1.318	5.654	<.001

**Figure 3.4:** Box plot visualizing the attention (x-axis: 1=Helemaal niet mee eens, 7=Helemaal mee eens) versus the chosen media format (y-axis)



## Attention

The influence of videos in an online menu card on attention was measured. A one-sample t-test was conducted, testing the attention variable against TestValue = 4 (neutral) to assess if participants found their attention to be positively influenced by the videos, resulting in the data presented in Table 3.7.

The mean attention score was significantly higher by .62 (95% CI, .40 to .84) than a neutral attention score of 4, t(144) = 5.65, p < .001. A high SD = 1.32 shows that the data is widely spread.

There were a total of 69 participants that chose for an image, and 76 that chose a video. An independent-samples t-test was ran to map the attention against the choice of media format, and can be seen in Figure 3.4. By assessing the normal Q-Q plots visually, it was determined that the data was normally distributed. There was homogeneity of variances in the data, as determined by Levene's test for equality of variances (p = .673). The reported attention grabbed was higher for participants that chose for a video (M = 4.77, SD = 1.36) than for ones that chose an image (M = 4.45, SD = 1.26), which is a not statistically different with M = .32, 95% CI [-.76, .11], t(143) = -1.48, p = .140.

**Figure 3.5:** Bar graph visualizing the distribution of TP-1 (x-axis: 1=Helemaal niet mee eens, 7=Helemaal mee eens) versus the amount of participants (y-axis)



 Table 3.8:
 Study 1 completeness of information construct descriptives

$$\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|} \hline N & M & SD & t & p \\ \hline \end{tabular} \label{eq:completeness} Completeness of information $145$ | $4.831$ | $1.536$ | $6.511$ | $<.001$ \\ \hline \end{tabular}$$

#### Time pressure

TP-1 was explored in a bar chart (Figure 3.5 and resulted M = 6.08 and SD = 0.95. Of the group, 10 participants (6.9%) answered in disagreement with the statement.

Another bar chart was created to explore TP-2 which can be seen in Figure 3.6. With M = 3.46 and SD = 1.69, this item is very widely distributed with the mean being under the middle of 4. The majority of participants did not feel the videos helped them make their choice quicker.

#### **Completeness of information**

To get an insight into the results of the *completeness of information* construct, a onesample t-test was conducted against TestValue = 4 (neutral). The results can be observed in Table 3.8.

This shows that there is a positive response for the *completeness of information* interpreted by the participants. When splitting the results into the groups of participants that chose for an image and for a video, a box plot can be constructed which can be seen in Figure 3.7.

With an independent-samples t-test, the completeness of information scores were

**Figure 3.6:** Bar graph visualizing the distribution of TP-2 (x-axis: 1=Helemaal niet mee eens, 7=Helemaal mee eens) versus the amount of participants (y-axis)



**Figure 3.7:** Box plot visualizing reported completeness of information (x-axis: 1=Helemaal niet mee eens, 7=Helemaal mee eens) versus the chosen media format (y-axis)



 Table 3.9:
 Study 1 information format construct descriptives.

**Figure 3.8:** Box plot visualizing the reported information format scores (x-axis: 1=Helemaal niet mee eens, 7=Helemaal mee eens) versus the chosen media format (y-axis)



mapped against the choice of media format. Visual inspection of the normal Q-Q plots assessed that the data was normally distributed. Lavene's Test of equality of variances determined that there was homogeneity of variances in the data (p = .361). Participants that chose a video reported a lower completeness of information (M = 4.68, SD = 1.57) compared to ones that chose for a food item with an image (M = 4.99, SD = 1.49). This difference was not statistically different with M = .31, 95% CI [-.20, .81], t(143) = 1.21, p = .229.

### Information format

A one-sample t-test was conducted with the *information format* construct against TestVariable = 4 (neutral) in order to explore the distribution of the data. The results can be seen in Table 3.9. Additionally, a box plot was constructed based on an independent-samples t-test to visualize the differences between participants that chose an image versus ones that chose a video. This can be seen in Figure 3.8.

By visually inspecting the normal Q-Q plots, it was determined that the data was normally distributed. With a p = .579, Lavene's Test of equality of variances showed that there was homogeneity of variances in the data. A higher score for the information format construct was reported by participants that chose for a video dish (M = 4.24, SD = 1.54) **Figure 3.9:** Box plot visualizing the responded IF-2 values (x-axis: 1=Helemaal niet mee eens, 7=Helemaal mee eens) versus the chosen media format (y-axis)



versus ones that had chosen for an image (M = 3.67, SD = 1.46), and was determined to be a significantly different, M = .57, 95% CI [.07, 1.05], t(143) = 2.26, p = .025.

For additional analysis, IF-2 was further studied. An additional box plot was created for this item and can be seen in Figure 3.9.

The data was assessed to be normally distributed by visually inspecting the normal Q-Q plots. Lavene's Test of equality of variances showed homogeneity of variances in the data (p = .328). The reported reduction of decision complexity from the implementation of videos was higher for participants that ended up choosing a video dish (M = 3.78, SD = 1.78) versus participants that chose for an image (M = 3.23, SD = 1.55). The test showed that these differences were barely non-significant with M = .544, 95% CI [0.005, 1.094], t(143) = 1.96, p = .052.

## Comparability

Since COM-1 was ejected from the analysis, only COM-2 was used to determine the construct of comparability. A bar graph was constructed to analyze the distribution of answers by the participants, and can be seen in Figure 3.10.

The mean ease of comparability was significantly higher by .88 (95% CI, .64 to 1.13) compared to a neutral score of 4, t(144) = 7.05, p < .001. With a high SD = 1.50, it shows that there is a wide spread in the data. When constructing a box plot to compare the answers given by participants that chose for an image and the ones that chose for a video, the following can be seen in Figure 3.11.

**Figure 3.10:** Bar graph visualizing the distribution of the ease of of comparability (x-axis: 1=Helemaal niet mee eens, 7=Helemaal mee eens) versus the amount of participants (y-axis)



**Figure 3.11:** Box plot visualizing the responded ease of comparability (x-axis: 1=Helemaal niet mee eens, 7=Helemaal mee eens) versus the chosen media format (y-axis)



Figure 3.12: Stacked bar graph visualizing the distributions of participants choosing for an image or video)



With an independent-samples t-test, the ease of comparability construct was mapped against the choice of media format. The normal Q-Q plots showed that there was a normal distribution in the data. Levene's Test for equality of variances showed that the variances in the data were also homogeneitic (p = .117). The reported ease of comparability was assessed to be higher for participants that chose a video (M = 5.05, SD = 1.38) versus ones that chose an image (M = 4.70, SD = 1.62). This difference was not significant though, with M = .36, 95% CI [-.85, 1.37], t(143) = -1.43, p = .155.

## Purchase choice

Of the 145 participants, there were a total of 69 participants that chose for an image, and 76 that chose a video. With a chi-square goodness-of-fit test, it was determined whether that result was significant or not. With an expected amount of 72.5 per group, the test showed no significant difference between the two options ( $\chi^2(1) = .338$ , p = .561), with 52.4% of the participants choosing for a video dish. A visualization can be seen in Figure 3.12.

## 3.3 Discussion

In this section, the results of Study 1 will be used to answer SQ1:

# SQ1: To what extent do videos in online menu cards influence the process of choosing food?

To aid in answering that question, four hypotheses were formulated:

- H1: Videos in online menu cards draw attention.
- H2: Videos in online menu cards aid in the evaluation of alternative food items.
- H3: Videos in online menu cards reduce the complexity of choosing food.

• H4: Food items that feature a video have a higher purchase intention compared to food items featuring a static image.

To keep this section as structured as possible, each hypothesis will be tested one by one. For more information on how the hypotheses were derived, please refer back to Chapter 2.

H1: Videos in online menu cards draw attention. It was hypothesized that videos surrounded by static imagery would attract the participants attention. Results showed that participants found that the videos attracted their attention significantly compared to neutral. However, this significance will be taken with a grain of salt due to the fact that there is no comparison material available to compare these results to the attention drawn by the images. Based on this, the hypothesis will be partially accepted and will require more research.

There was no significant difference in the amount of attention grabbed between participants that ended up choosing a video and ones that chose an image, however the reported attention grabbed was higher for participants that chose for a video.

This hypothesis was based on research conducted by Sahin (2020); Peters (2014); Armel et al. (2008), where videos implemented in digital signage and menus attracted more attention, leading to a higher likeliness to be chosen. Although not statistically significant, this study follows those results. It can be argued that these results make sense, based on the fact that one cannot choose for a product they did not see. Although all participants were *exposed* to the videos, does not mean that they actively saw it. Having the participants actually notice the videos is an important factor when wanting to use it to influence food choices, and it is promising that they got seen.

H2: Videos in online menu cards aid in the evaluation of alternative food items. This hypothesis was tested with the help of multiple constructs by Bettman et al. (1998), namely *time pressure*, *completeness of information*, *information format* and *comparability*, based on the evaluation stage according from the EBM model Engel et al. (2005).

When measuring the *time pressure* construct, results showed that 7% of the participants did not feel like they had enough time to make their decision. This is interesting given there was no timer or time limit set for the participants. This could mean that participants felt hurried by videos, or that maybe their environment while filling out the survey had impact on this scoring. Since the survey was distributed on Prolific, a paid survey platform paying a flat fee for finishing the survey, some participants could have felt hurried by that as well. The data obtained from asking the participants if the videos reduced their decision time is widely spread (SD = 1.69). These results show that for 93% of the participants, this was not the case, implying that time pressure was not a reason for them to be more selective generally. The majority of the participants did not feel like the videos helped them make their choice faster. As Bettman et al. (1998) described in their research, when consumers have the feeling they are under time pressure, they become more selective as to what information they examine to accelerate the decision process. The implication of this in a real world scenario could be that implementing videos in digital signage in an environment where there is a fast flow of customers, could not be beneficial due to forcing them to make uneducated decisions.

The measurements of the completeness of information construct showed widely spread data with an average of 4.83 (SD = 1.58). Considering one could argue a goal of a menu is wanting to give customers the necessary information they are looking for to make an educated choice, this can be regarded at pretty low. For this study, this implies that some participants might have missed out on crucial information to aid their decision making process. While Rousseau (2011) celebrates the fact that it is possible to put more information into a video, the consumer still has to be able to find it. It is mostly unknown what kind of information the participants were missing, and if that referred to the videos only. In the comments, 12 participants voluntarily mentioned some form of dietary restriction, which would result in them wanting more information about the ingredients. It can be assumed that these participants missed certain attributes in their decision making process, which might have altered their final selection.

Testing the *information format* among the participants resulted in significantly different scores between participants that chose for an image and ones that chose for a video, with the latter scoring higher. The goal of this construct was to measure the general accessibility and complexity of using videos instead of images. This implies that on average, participants that found the videos to be more interesting and tempting ended up choosing for a video dish. This lines up with the research from Ansari and Joloudar (2011), which shows that a higher amount of general interest en cognitive investment into a format can positively influence sales. The widely spread results imply that the opinions and interpretations of participants on the video format varied. From these results, it is hard to assess whether that is because of the video content (art style, information given, speed, etc.) or because of the video format in general.

The *comparability* construct was studied to find out how participants handled comparing images with videos. The results showed a significant difference between participants that ended up choosing for an image compared to ones choosing a video, with the latter scoring higher. This is interesting to see, because the *completeness of information* construct showed that a significant portion of the participants had trouble finding the information they were looking for in the videos. With that being the case, one could argue that the missing information did not have influence on the comparability. Since the videos featured slide in and out animations for the dish picture and textual information, there were moments in time where the content was not visible. At those moments, it would be more difficult for participants to compare the two formats. With participants that chose an image scoring significantly lower on this construct, it could be argued that they went for the traditional choice featuring an image because of that.

Based on the results of the constructs, a trend can be seen where, besides the completeness of information, all other constructs were scored higher by participants that ended up choosing a video. Because not all are significant, the hypothesis will be partially accepted. More research will have to be conducted to see whether this trend is meaningful.

H3: Videos in online menu cards reduce the complexity of choosing food. This hypothesis was tested with the aid of question IF-2, asking participants if they felt like the videos made their decision easier. Although there was no significant difference between participants that chose for a video and image (p = 0.052), the reduced decision complexity average for participants that chose for a video was 0.57 higher (3.78 versus 3.23). However, both scored under the neutral scoring of 4, implying that for all participants, the decision complexity was not reduced. Bettman et al. (1998) described that when not being able to find the information needed, decision complexity can go up. A correlation can be seen here with the *completeness of information* construct, showing that this indeed was the case. Therefore, this hypothesis was rejected.

H4: Food items that feature a video have a higher purchase intention compared to food items featuring a static image. When participants were prompted to make their choice of food from the online menu, 52.4% chose for a video dish. Based on the chi-square test, it turned out that this was not a significant amount. Based on research from Engel et al. (2005); Armel et al. (2008), it was theorized that there could be an increase of between 6 to 11% in choices for the videos. However, in this study, those numbers were not reached. Based on these insignificant results, this hypothesis was rejected. This implies that animating the information that is also shown statically, will not significantly increase the amount of times that format is chosen.

SQ1: To what extent do videos in online menu cards influence the process of choosing food? Based on the results, it could be determined that it is possible to grab the customers attention by implementing videos in online menu cards. On top of that, videos can aid in the decision process of the customer, especially if the video format offers all the information a customer is looking for at all times. Implementing videos in menus cards can slightly boost the choice for that specific food item, but not significantly. Participants showed general interest in seeing videos in the menu, however, it did not make the food decision easier.

## 3.4 Limitations and future work

The results that were found in this study were influenced by some limitations, which will be assessed in this section. It will also be determined which of these limitations will be attempted to be fixed in the set-up for Study 2.

Firstly, it should be noted that by having participants assess their own behaviour in the questions, will result in different data than when certain constructs are objectively measured. For example, the participants had to assess if the videos attracted their attention. While to some extent this can be assessed by yourself, a more robust option could be to measure which dishes a participant would look at with eye tracking, in which order, and how long. The measured attention would also be sensitive to the amount of videos in a menu - one video between five images could stand out more than just having six videos. Currently, it is not exactly know how much attention the images grabbed. The data generally showed that the participants did not find the information complete. A reason for this could be the type of content and the length of the video. The longer the length of the video, the longer the participant has to focus on one area of the menu to see all the content. Since the videos used in this digital menu were 10 seconds long, this is not an unlikely reason. The participants spent an average of 3 minutes 54 seconds on on the whole survey, which is half of the estimated time by the researcher. In a situation where a participant is scrolling through the menu, and not having all the videos appear at the same time on the screen, there is a risk that at the moment a participant glances over, the information they are looking for is not there. Backing up this theory, in the open comment section, four participants expressed that they found themselves waiting for the video to restart to inspect specific pieces of content again. Having to wait for that for multiple items would not speed up the process of choosing either. Ingredients, dietary information and pricing were not included with the food items to avoid their extra influence on the decision making process. It was mentioned to the participants not to worry about the prices, but some participants still went looking for them as found in the comment section.

For future experiments, including the ingredients could give this group of partici-

pants a more complete picture to base their decision on. Additionally, when comparing multiple media formats, it turned out to be important for the participants that even if they glanced over a video, they could find the information they needed. With images, the same information is always given, but when having specific timestamps in a video dedicated to different categories of information, participants that browse quickly have a risk of missing out on what they are looking for. For the second study, this is something that should be addressed. Future studies would also benefit from measuring specific data for both types of content, in this case, attention for example. This could also apply for purchase intent, so its differences between the different formats can be directly compared.

## 3.5 Conclusion

The goal of this study was to obtain data to answer the research question: "To what extent do videos in online menu cards influence the process of choosing food?". To obtain this data, an online survey was published where participants had to choose a food item out of a menu offering six different choices, of which three were displayed as an image and three as an animated video.

Participants reported that the videos did attract their attention when they were exposed to them in the menu. The videos aided participants in their evaluation of alternative options, even though they found it difficult to find the information they were looking for. They did not feel the videos made it easier to make their decision. In the end, more participants chose for a video dish than an image, however, this was not a significant amount. It should be explored further how to optimize the videos regarding their content, so that every customer can see the information they want even when they quickly glance over.

## Chapter 4

## Study 2: Video Content

To answer the second sub-question, another study was conducted to obtain the data needed for this. In this chapter, the process of constructing this study will be elaborated on, followed by the results and implications.

## 4.1 Methodology

In this chapter, the process of executing the second study will be explained, with the focus to answer SQ2. The base of this study was designed in a similar fashion to Study 1 (Chapter 3). Design aspects that were kept the same will be pointed out, but not elaborated in depth unless the reasoning for the decision has changed. Design aspects that are different will be explained more deliberately.

## 4.1.1 Research Design

To find out how participants perceive different types of video content, and if that has any effect on their decision process, this experiment was structured as a between-subjects 3-group study. It was decided to make it a between-subject experiment because the roots of this experiment focus on potentially affecting the decision, not changing it. By making sure every participant only chooses a food dish once, this can be insured. Based on the background research in Chapter 1, the video content was based around what consumers associate with – and find important in – local foods. The three groups were labelled as:

1. Neutral group: the experimental options from the menu stated that they were made with a local ingredient.

Gender	Neutral	Tastiness	Sustainability	N
Male	72	68	71	215
Female	76	68	71	215
Non-Binary	1	2	3	6
Genderfluid	0	2	0	2
Unknown	2	3	1	6
	151	150	150	451

Table 4.1: Study 2 descriptives of participants gender.

<b>Table 4.2:</b> Study 2 descriptives of participants age grou
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Gender	Neutral	Tastiness	Sustainability	N
18 - 20	17	25	22	64
21 - 30	82	82	85	249
31 - 40	25	26	23	74
41 - 50	15	13	11	39
51 - 60	8	1	6	15
61 - 70	2	0	2	4
71 - 80	0	0	1	1
Unknown	2	3	0	5
	151	150	150	451

- 2. **Tastiness group:** the experimental options from the menu stated that they are made with a local ingredient, and were therefore very tasty.
- 3. Sustainability group: the experimental options from the menu stated that they were made with a local ingredient, and were therefore sustainable.

This survey was constructed and conducted on the Qualtrics survey platform.

## 4.1.2 Participants

Recruitment for participants was done via the online platform Prolific. This experiment was aimed at people who reside in the Netherlands and speak Dutch as their main language. This choice was made due to the local food not having the same meaning for everyone in different regions of the world, as can be read in Section 1.3.1. Participants were required to fill out the survey on a desktop PC to eliminate any potential size issues with the videos on mobile devices with a smaller screen estate. Participation was completely voluntary and participants received a monetary compensation for their time after completing the survey. Based on the results of Study 1, it was decided to attempt to get 150 participants per group, making for a total of 450 participants for this study.

The representation of gender and age groups can be observed in Table 4.1 and 4.2.

Participants were sorted in one of three groups at random by Qualtrics. The platform offers a feature to try to evenly divide the participants among the three groups, which was used to come to an almost perfect equal division.

## 4.1.3 Mock-up design

This section will dive into the design of the mock-up menu card and decisions that were made to minimize any biases and maximize the user experience.

### Presentation

The digital menu set-up consisted of 6 different food items that were available to be chosen from, just like in Study 1. In that study, the survey pointed out that there was no case of information overload, so there were not too many options. This would open the possibility to potentially add more options, however, participants were presented with 3 static images and 3 videos. In this study, they will be presented with 6 videos, which would result in more stimuli. With that in mind, it was decided not to increase the amount and keep it at 6. The same choice of food categories was offered again in this study: *meat, fish* and *vegetarian*.

The same basic order logic from Study 1 was used in this study as well, with slight alterations to serve the different research goal and user group amount:

- For each group, half of the presented food dishes must be in a *control* format, and the other half in the *experimental* format. This is to see if there are differences in the frequency participants choose for the experimental choice over the control in every group.
- For every food category (meat, fish, vegetarian), half of the options should be presented in the *control* form, the other half as the *experimental* form.
- Within every food category (meat, fish, vegetarian), which of the food items are displayed as *control* and which in the *experimental* form should be determined at random for each participant.
- All presented dishes must be presented in a random order to remove any potential response order bias (Krosnick & Alwin, 1987).

The *control* format of a video did not include any lead towards food locality. The *experimental* format of a video would include a lead to food locality, with an additional mention of its sustainabiliaity or tastiness.

Category	Food item	Highlighted ingredient
Most	Beef stew (Runderstoof)	Carrot (Wortel)
meat	Pork tenderloin (Varkenshaas)	Cauliflower (Bloemkool)
Fich	Oven grilled cod (Kabeljauw ovenschotel)	Bell pepper (Paprika)
1,1811	Pasta with salmon (Pasta met zalm)	Spinach (Spinazie)
Vocatarian	Vegetarian risotto (Vegetarische risotto)	Pumpkin (Pompoen)
vegetallall	Vegetarian lasagna (Vegetarische lasagne)	Tomato (Tomaat)

Table 4.3: List of food items for Study 2 in their respective category.

Since Prolifics limited pool of available Dutch participants was used for Study 1 and Study 2, it was chosen to offer a completely different set of 6 food items, to eliminate any potential bias of participants that had also participated in the first study. These new food items were chosen based on the required food category (meat, fish, vegetarian), and importantly, included a vegetable that is produced on large scale both in the Netherlands, but also other countries to make sure they would be factually correct in the *control* and *experimental* form.

The decision was made to highlight a *vegetable* from of every dish, because background research in Section 1 showed that it is not uncommon that locally sourced meat still has a significant global warming potential. Second, depending on the geographical location of the participant in the Netherlands, fish would most likely not be interpreted as a local produce towards the south-east. By highlighting a vegetable in all dishes, it was attempted to keep the presented scenarios factually correct and consistent.

## Visuals

All videos were made to be the same size and designed in the same art style. They were all split in two parts: a graphical (approximately 3/4th of the screen estate) and a text (approximately 1/4th of the screen estate) area. In the graphical area, the growing environment would be shown of the highlighted vegetable with subtle differences between the *control* form and the *experimental* local form. As an example, the experimental local videos would feature a more flat landscape due to the environmental nature of the Netherlands, feature stereotypical Dutch characteristics like a windmill, etc. Small elements in the videos were animated: the leaves of the vegetables, swaying trees in the background, rotating windmills, drifting clouds, etc. The goal of this was to also feature subtle representations of locality in the graphical content that could pick up on, and not just in the text. In the text area, the highlighted vegetable would be mentioned, and depending on the group, additional information about the sustainability or tastiness. Behind the text would be the same animated background used in Study 1 for proper

Figure 4.1: Study 2's food item banner template

Dish title Met [ingredient], [ingredient]		+
Ingredient growth area visualization	en [ingredient] [optional extra info]	

readability on all videos. The text was given a very subtle wiggle to avoid being completely static on the video. The following text was displayed after the dish name depending on the content form:

```
Control: ...en [vegetable]
Experimenal, neutral: ...en lokale [vegetable]
Experimenal, tastiness: ...en lokale [vegetable], lekker vers
Experimenal, sustainability: ...en lokale [vegetable], heel duurzaam
```

From the discussion of Study 1, it was learned that with the participants scrolling behavior, it could sometimes occur that when a participant glanced at a specific dish, not all information was visible on demand. This was countered in this study by not having any appearing or disappearing elements throughout the video loop. All videos followed the template that can be seen in Figure 4.1. An example of two banners can be seen in Figure 4.2 (a control set-up for tomatoes), and Figure 4.3 (an experimental, neutral set-up for tomatoes).

Figure 4.2: Study 2's example of a finished banner featuring the control state: Vegetarian Burger

Vegetarische lasagne Met paprika, courgette, kaas		+
	en tomaten	

It was decided to not include any price tags with the food items to avoid participants choosing the most value for money option. From Study 1s discussion, it was concluded that a sizable amount of participants complained about there being no ingredient information available. Additionally, it was determined that more dietary and ingredient information could be beneficial in future studies. Therefore, the choice was made to include a few **Figure 4.3:** Study 2's example of a finished banner featuring the local and sustainable state: Vegetarian Burger



ingredients for every dish, to make the highlighted ingredient not feel out of place. Just like with the dish category, there will always be participants that do not like the taste of some ingredients, which is the reason why multiple choices per category are offered.

The videos were implemented in a .GIF format due to the automatic looping feature, wide browser support and absence of potential play/pause buttons and scrub options. Each .GIF was 15 seconds long. The layout of the digital menu was not changed compared to Study 1.

## 4.1.4 Experiment Procedure

The experiment procedure was kept similar to Study 1. No major changes were made to the information brochure and informed consent form. The introduction stayed similar as well, and participants were made aware that they would be exposed to subtle moving videos. After consent was given, participants were asked for their gender, age, frequency of usage of digital menu cards, and their current hungriness.

They were given a similar precise introduction to the one from Study 1, asking them to take a good look at the menu and that questions about it would follow.

The participants were then presented with the online menu card containing the 6 dishes that they could choose from. After choosing, they could continue and would be presented with a short introduction explaining that they would be shown their 6 dishes again one by one, asking the same three questions for each, gauging the perception of tastiness, environmental friendliness and purchase intention. All 6 dishes were presented in a random order to eliminate order bias.

After answering those questions, the participants would be asked to fill out another 11 questions and 1 text box to give an optional remark or extra comment. These comments will not be actively analysed for the results, but will be used to give extra insights for discussion. All comments can be seen in Appendix B.

## 4.1.5 Measures

The main individual variable that was experimented with in this study was the video content (control, experimental neutral, experimental tastiness, experimental sustainable). All items were measured on a 7-point Likert scale unless stated otherwise. The participants were first asked to answer some general questions, recording their *Gender* (male, female, other, prefer not to say) and Age. They were then asked to report their digital menu usage and hungriness. Following, their food choice was recorded, by selecting the dish they would like to eat. Based on the food items that the participant was shown, they were presented with those 6 items one by one, for each measuring their *perceived* tastiness, perceived sustainability and their purchase intention. After all 6 items had been presented, the participants were asked to answer three questions about their *consumption* goal, regarding how important the sustainability and tastiness of their food is to them, and if one is more important than the other. The participants were asked to answer 5 standalone questions, carried over from Study 1, checking if they had seen any videos on the screen, if they found the videos *interesting*, if the videos reduced the *decision complex*ity, if they considered multiple items before making their final choice, and if they found it easy to compare the information in the videos with each other. These measurements were taken to see if there was a difference between prompting a participant with 6 videos, compared to 3 videos and 3 images as done in Study 1.

The potential *information overload* (Payne et al., 1991; Malhotra, 1982; Scammon, 1977) was measured with two questions, and their *habit* was measured by asking if they would have normally chosen the same type of dish as they did today. In the end, they were prompted with an open field to enter any remarks about their choice or about the survey if they pleased to do so. An overview of the measures and the exact item questions can be seen in Table 4.4.

The biggest goal with these measures was to find out whether mentioning that a dish contains a local ingredient in the video influences a participants food choice, and what happens if the tastiness or sustainability of the ingredient is highlighted with it.

## 4.1.6 Data analysis

For all analyses, *IBM SPSS 28* was used. Item Extra Question (E)-1 was reverse scored.

To test hypothesis 5a (Food items that feature video content stating the food is sustainable are perceived to be more sustainable than food items that don't feature that video content) and 5b (Food items that feature video content stating the food is tasty are perceived to be tastier than food items that don't feature that video content), Kruskal-Wallis H

Construct	Code	Item	
Food choice	FC	The selected food choice.	
Perceived tastiness (per item)	P-Taste	Hoe lekker denkt u dat dit gerecht is?	
Perceived sustainability (per item)	P-Sus	Hoe duurzaam denkt u dat dit gerecht is?	
Purchase intention (per item)	P-Int	In hoeverre zou u dit gerecht graag willen bestellen?	
Consumption goal	CG-Sus	Ik vind het erg belangrijk dat het voedsel wat ik eet duurzaam is.	
	CG-Taste	Ik vind het erg belangrijk dat het voedsel wat ik eet lekker is.	
	CG-Comp	Ik vind hoe lekker mijn eten is be- langrijker dan de duurzaamheid van	
		het eten.	
Attention	E-1	ik heb geen video's op het scherm gezien (INV)	
Information format	E-2	Ik vond het interessant om naar de video's te kijken.	
	E-3	De video's maakten het makkelijker om mijn keuze te maken.	
Comparability	Comparability E-4 Ik heb voordat		
	E-5	Ik vond het makkelijk om de infor- matie in de video's met elkaar te vergelijken.	

Table 4.4: The constructs measured in Study 2 and their related items

Table 4.5:	The covariates	measured in	Study 2	2 and	their	related	items
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Covariates	Code	Item
Gender	GENDER	Wat is je geslacht?
Age	AGE	Hoe oud ben je?
Digital menu usage	USAGE	Hoe vaak gebruik je een digitale
		menukaart in een restaurant of op
		een maaltijd bezorg-platform?
Hungriness	HUN	Hoe hongerig voel je je op dit mo-
		ment?
Habit	HAB	Normaal gesproken zou ik een zelfde
		soort gerecht kiezen als ik vandaag
		heb gekozen.
Information overlaod	IO-1	Er waren te veel gerechten om uit te
		kiezen.
	IO-2	Ik voelde me overweldigd door de
		keuzes.

Tests were used. This was chosen due to needing to compare ordinal data from the DV's Perceived Tastiness (P-Taste) and Perceived Sustainability (P-Sus) between the three user groups. The Kruskal-Wallis H test is broadly used to check whether two or more groups have differences in the distributions or the medians. If there were significant results, Dunn (1964)'s procedure with a Bonferroni correction for multiple comparisons would follow to conduct post hoc tests. Box plots were used to visually present the data.

To test hypothesis 6a (Purchase intent is higher for food items that consumers perceive to be sustainable) and 6b (Purchase intent is higher for food items that consumers perceive to be tastier), linear regression models were used to find out if the P-Sus & P-Taste scores were correlated with purchase intent. The Durbin-Watson statistic was used to assess if there was independence of residuals. This value can range from zero to four, and if the value is 2.0, it can be considered independent of residuals. According to Kenton (2022), values in the range of 1.5 are 2.5 are considered to be normal. Scatter plots with subgroup fit lines were used to visually present the data. For visual aid, scatter plots were constructed accompanied by linear regression slopes. Due to the nature of the data, many participant data points overlapped. To attempt to provide the most visual clarity, scatter dots that are colored darker contain more participants on that coordinate compared to lighter dots.

To test hypothesis 7a (Consumers that find the sustainability of their food important have a higher purchase intent for food items which are perceived to be more sustainable) and 7b (Consumers that find the tastiness of their food important have a higher purchase intent for food items which are perceived to be more tasty), moderated multiple regression models were created with the aid of PROCESS created by Hayes (2012). With this, it was analysed whether Consumption Goal regarding sustainability (CG-Sus) and Consumption Goal regarding tastiness (CG-Taste) played a moderating role on the relation between the perceived tastiness or sustainability and the purchase intent. Linear slope plots were created to visualize the data.

To check if there was a significant amount of participants choosing for the experimental videos over the control videos, a *Chi-Square test* was conducted for all three user groups. This test was chosen due to wanting to test a categorical DV (Control or Experimental) against an - in theory - 50/50 distribution between those two.

## 4.2 Results

In this chapter, the experiment results are presented, with the goal to test hypothesis 5a, 5b, 6a, 6b, 7a and 7b, and with that answer SQ2. Of the 451 participants, 35 participants

**Figure 4.4:** Box plot visualizing the mean perceived sustainability (x-axis: 1=Helemaal niet, 7=Heel erg) per video format (y-axis)



were excluded from further analysis due to reporting not having seen any video. Because it is a likely scenario that technical difficulties (internet speed, .GIF file size, browser) could have caused this, these participants were excluded from further analysis. The total amount of participants left is 416.

To test hypothesis 5a and 5b, the data obtained from P-Taste and P-Sus were compared per user group.

Kruskal-Wallis H Tests were used for this, with the goal to determine if there were differences in P-Taste and P-Sus scores between the participants that were exposed to the experimental "neutral" (n = 141), "tastiness" (n = 139), "sustainable" (n = 136) and "control" (n = 416) video content.

First, the P-Sus scores were compared. The distributions of the P-Sus scores were not similar for all groups, as determined by visually inspecting the boxplot seen in Figure 4.4. Due to the different shape of the neutral group compared to the other groups, mean ranks will be used for further analysis.

Between the groups, the mean ranks of P-Sus scores were significantly different with  $\chi^2(3)=35.485,\,p<.001$  .

Using Dunn (1964)'s procedure with a Bonferroni correction for multiple comparisons, pairwise comparisons were performed. The adjusted *p*-values are presented here. Conducting this post hoc analysis showed that there were significant differences in P-Sus scores between the tastiness (*meanrank* = 428.38) and sustainable (*meanrank* = 508.01)(p = .034) videos, the control (*meanrank* = 373.53) and neutral (*meanrank* = **Figure 4.5:** Box plot visualizing the mean perceived tastiness (x-axis: 1=Helemaal niet, 7=Heel erg) per video format (y-axis)



(443.29)(p = .016) videos and between the control (meanrank = 373.53) and sustainable (meanrank = 508.01)(p < .001) videos.

Subsequently, the P-Taste scores were compared with each other. The distributions of the P-Taste scores were assessed to be similar for all groups, as determined by a visual inspection of the box plot seen in Figure 4.5. The median scores of P-Taste were lower for the neutral (4.67) compared to the tastiness and sustainable (5.00) groups, but those differences were not found to be statistically significant,  $\chi^2(3) = 5.904$ , p = .116. Because the differences were not significant, no post hoc test was conducted.

To test hypothesis 6a and 6b, P-Sus & Purchase Intent (P-Int) and P-Taste & P-Int were analyzed for 6a and 6b respectfully. By constructing a scatter plot of P-Sus against P-Int values with superimposed regression lines, the linearity of the data could be assessed, as can be seen in Figure 4.6. The four content forms (control, neutral, tastiness, sustainable) were plotted separately in the graph to observe potential differences. Note that the control form was shown to participants from all three participant groups. Therefore there is three times as much data in the control plot. Visual inspection of the graph showed that a linear relationship existed between the two variables. Further analysis returned a Durbin-Watson statistic of 1.970, which is close enough to 2 to assess that there was independence of residuals according to Kenton (2022). The data showed that there was homoscedasticity, which was assessed by visually inspecting a plot of standardized residuals versus standardized predicted values. By visually inspecting a normal probability plot, it was assessed that the residuals were normally distributed. With R = .456, this positive correlation is moderate, and the reported averaged P-Sus scores accounted for 20.8% of

**Figure 4.6:** Scatter plots visualizing the correlation between perceived sustainability (x-axis: 1=Helemaal niet, 7=Heel erg) versus the purchase intent (y-axis) per content form



the variation in purchase intent with an adjusted  $R^2 = 20.6\%$ , which is a moderate effect size according to research conducted by Cohen (2013). There is a significant correlation between the P-Sus scores and the purchase intent, F(1, 414) = 108.502, p < .001.

The same scatter plot was constructed between P-Taste against P-Int values, as can be seen in Figure 4.7. It can be assessed from the plot that there is a linear relationship between the two variables. With a Durbin-Watson statistic of 2.014, it was assessed that there was independence of residuals. By visually assessing a plot of standardized residuals versus standardized predicted values, it was assessed that there was homoscedasticity in the results. A normal probability plot showed that the residuals were normally distributed. With R = .794, this positive correlation is large according to Cohen (2013). The reported averaged P-Taste scores accounted for 63.0% of the variation in purchase intent with an adjusted  $R^2 = 62.9\%$ , which, according to Cohen (2013) is determined as a substantial effect size. A significant correlation was found between the P-Taste scores and the purchase intent P-Int, F(1, 414) = 705.29, p < .001.

To test hypothesis 7a and 7b and find out if CG-Sus and CG-Taste have a mod-



**Figure 4.7:** Scatter plots visualizing the correlation between perceived tastiness (x-axis: 1=Helemaal niet, 7=Heel erg) versus the purchase intent (y-axis) per content form

erating role between the perceived tastiness and purchase intent, a moderated multiple regression was conducted using PROCESS created by Hayes (2012). Since there was an interaction effect found between perceived tastiness & perceived sustainability and the purchase intent, Model 1 was used for the analysis, which can be seen in Figure 4.8.

First, an analysis for CG-Sus was conducted, with Y being the purchase intent P-Int, X being the perceived sustainability P-Sus of the content, and W being the participants recorded importance of sustainable foods CG-Sus.

The analysis shows that P-Sus accounted for a significant proportion of the variance in purchase intention,  $\Delta R^2 = .025$ ,  $\Delta F(1,447) = 14.588$ , p = <.001. With a Durbin-Watson statistic of 1.966, it was assessed that there was independence of residuals. The model showed that there was a significant positive interaction effect between the perceived sustainability of food items and recorded importance of sustainable foods on purchase intention, b = .111, t(447) = 3.239, p <.001. The interaction effect was plotted which can be seen in Figure 4.9. For ease of visual assessment, regression lines were only drawn for CG-Sus = 1, 4 and 7.

By visually inspecting the plot, it could be assessed that an enhancing effect existed,



Figure 4.8: Process Model 1 by Hayes

**Figure 4.9:** Scatter plots visualizing the influence of CG-Sus on the correlation between perceived sustainability (x-axis: 1=Helemaal niet, 7=Heel erg) versus the purchase intent (y-axis) for CG-Sus = 1, 4 and 7


Figure 4.10: Scatter plots visualizing the influence of CG-Taste on the correlation between perceived sustainability (x-axis: 1=Helemaal niet, 7=Heel erg) versus the purchase intent (y-axis) for CG-Taste = 5, 6 and 7



where the perceived sustainability becomes a more important factor on purchase intent when the participants recorded importance of sustainable foods increases.

Second, an analysis for CG-Taste was conducted, with Y being the purchase intent P-Int, X being the perceived sustainability P-Sus of the content, and W being the participants recorded importance of sustainable foods CG-Taste.

By analysing the data, it was assessed that P-Taste did not account significantly for the variance in purchase intention,  $\Delta R^2 = .002$ ,  $\Delta F(1,447) = 2.305$ , p = .130. With a Durbin-Watson statistic of 2.050, it was assessed that there was independence of residuals. Even though the model showed that there was a positive interaction effect between the perceived tastiness of the food items and recorded importance of the tastiness of food on the purchase intention, this interaction was not significant, b = .068, t(447) = 1.353, p = .177. In Figure 4.10, a plot of the interaction effect can be observed. Due to no participants choosing CG-Taste = 1, 2 or 3, no data could be plotted for those values. CG-Taste = 4 had 6 participants, and was deemed to not be enough data to plot a reliable linear regression slope.



**Figure 4.11:** Stacked bar graph visualizing the distributions of participants choosing for a control or experimental video, per user group

Of the 416 participants, 141 were in the "neutral" group, 139 in the "tastiness" group and 136 in the "sustainability" group. A chi-square goodness-of-fit test was conducted for all three groups to determine whether there were differences between the theoretical 50/50 distribution between participants that chose for a "control" video, or an "experimental" video. For the "neutral" group, a frequency of 70.5 was expected. The chi-square goodness-of-fit test showed that there was no significant difference in the amount of participants choosing for either of the two video options ( $\chi^2(1) = .858$ , p = .354) with 53.90% of the participants choosing for an experimental video. For the "tastiness" group, 69.5 was the expected frequency. The chi-square goodness-of-fit test showed a significant difference between the amount of participants choosing for a control or experimental video ( $\chi^2(1)$ = 5.245, p = .022), with 59.71% choosing an experimental video. For the "sustainability" group, a frequency of 68 was expected to be seen. The chi-square goodness-of-fit test showed no significant difference between the choice distributions ( $\chi^2(1) = .471$ , p = .493) with 52.94% of the participants choosing for the experimental video. The distributions of all three groups together can be seen in Figure 4.11.

### 4.3 Discussion

In this section, the results of Study 2 will be used to answer SQ2:

#### SQ2: To what extent does the type of video content regarding food locality influence food choice?

To aid in answering that question, six hypotheses were formulated:

- H5a: Food items that feature video content stating the food is sustainable are perceived to be more sustainable than food items that don't feature that video content.
- H5b: Food items that feature video content stating the food is tasty are perceived to be tastier than food items that don't feature that video content.
- H6a: Purchase intent is higher for food items that consumers perceive to be sustainable.
- H6b: Purchase intent is higher for food items that consumers perceive to be tastier.
- H7a: Consumers that find the sustainability of their food important have a higher purchase intent for food items which are perceived to be more sustainable.
- H7b: Consumers that find the tastiness of their food important have a higher purchase intent for food items which are perceived to be more tasty.

To maintain structure in this section, the hypotheses will be discussed one by one. For more information on how the hypotheses fit in the research model, please refer back to Chapter 2.

H5a: Food items that feature video content stating the food is sustainable are perceived to be more sustainable than food items that don't feature that video content. To find out how video content can be used to influence the consumers food choice, it was important to check whether the content used in the experiment was perceived as intended. For that, it was hypothesized that video content that stated the dish contained a local - and with that sustainable - ingredient, would be perceived as better for the environment than content which did not state that. Overall, all videos that mentioned the ingredient was local had scored higher on perceived sustainability compared to the control which did not mention that. Results showed significant increases in perceived sustainability for the videos that mentioned an ingredient was local and sustainable compared to the *control* and compared to videos that mentioned the ingredient was local and tasty. Although the local and local and tasty videos also had a higher perceived sustainability compared to the control, only the difference between *local* and control was significant. This implies that the video content does what it was meant to do, and is perceived as sustainable. This also shows that mentioning that an ingredient is local also boosts perceived sustainability by itself. This follows the lines of the research by Frash Jr et al. (2015) and Lang and Lemmerer (2019), that local foods are generally perceived to be better for the environment. By also stating the sustainability along side the locality, it was possible to boost that perceived sustainability even more. With that,

this hypothesis can be accepted.

H5b: Food items that feature video content stating the food is tasty are perceived to be tastier than food items that don't feature that video content. The results show no significant increase in tastiness based on the type of video content the participants were shown. However, the content featuring *local and tasty* information had the highest average perceived tastiness score of all groups. This implies that by simply mentioning that something is tasty, like was done in one of the video types, will not mean it is perceived that way by the participant. This could be explained due to personal differences - every single person has their own taste preference and over the course of their lives, they learn what foods and flavors they like and which not. If one has learned that they do not like the flavor of mushrooms, it turned out to be harder to influence that perception than the perception of sustainability. Having that said, hypothesis 5b was rejected.

H6a: Purchase intent is higher for food items that consumers perceive to be sustainable. It was hypothesized that a correlation exists between the perceived sustainability of food and the purchase intent. Results show that there is a significant correlation between these two factors, where food items with a *low* perceived sustainability have a *lower* purchase intent on average than food items with a *high* perceived sustainability. The data shows that this correlation is very similar across all four content types. In all four cases, there was at least a difference of two Likert scale points on purchase intent based on the different scores of perceived sustainability. These results can be linked to the results of H5a, which stated that food items that were mentioned to be local had a higher purchase intent than ones without. What this implies, is that by addressing the locality of an ingredient of a food dish, it is possible to raise the purchase intent. This lines up with research by Frash Jr et al. (2015), who found that sustainable foods were more in demand if the consumer was aware of it. With this in mind, this hypothesis can be accepted.

H6b: Purchase intent is higher for food items that consumers perceive to be tastier. Due to the importance of the tastiness of food as concluded by Maehle et al. (2015), it was hypothesized that items that were perceived to be tastier by the participants would have a higher purchase intent. The results show that there was a significant correlation between the perceived tastiness and purchase intention. The results are so apparent, that food items with a perceived tastiness of 1, also had a purchase intention of around 1. This follows the research from Maehle et al. (2015), who stated that the tastiness of food was the most important attribute, independent of the consumer goal. Visual assessment of the four different video content groups do not show big differences. A connection can be made between these results and the results of H6a. The linear regression regarding the perceived tastiness versus purchase intent are much steeper than the regression lines of the perceived sustainability versus purchase intent. This follows the research from Lang and Lemmerer (2019) who stated that for local foods, tastiness was regarded as a more important attribute than the environmental impact. When connecting this with the results of H5b, it can be assessed that while the video content was not able to significantly increase the perceived tastiness, it is a more impactful attribute than the sustainability. Considering the above, this hypothesis can be accepted.

H7a: Consumers that find the sustainability of their food important have a higher purchase intent for food items which are perceived to be more sustainable. It was hypothesized that the importance of sustainable food as rated by the participants would have a moderating factor between the perceived sustainability and the purchase intent. From the results, a clear influence of the consumer goal regarding sustainability can be seen in the plots. Whereas participants that found the sustainability of their food very important have a significant correlation between their perceived sustainability and purchase intent, participants that responded with a Likert 1 on their importance of sustainable food can be almost horizontally linearly plotted. This implies, that for participants that care little about their food sustainability, the perceived sustainability barely has any influence on their purchase intent. This is an important finding, since these results clearly show that this effect on purchase intent is affected significantly by the type of interest of the customer. In a real world example, if a restaurant would mainly be visited by people that pay attention to their ecological footprint, the effect of the videos used in this study would be greater than when visited by people that care less. In regards to the assessment above, the hypothesis is accepted.

H7b: Consumers that find the tastiness of their food important have a higher purchase intent for food items which are perceived to be more tasty. A hypothesis was constructed to test the potential moderation factor of the importance of tastiness of participants on the correlation between perceived tastiness on purchase intent. The results showed that on average, participants found the tastiness of their food very important, considering no participants scored 1,2 or 3, and only 6 participants scored 4. It also showed that there was no significant interaction between the importance of tastiness for the participants and their perceived tastiness on the purchase intent. However, from assessing the regression plots, a small difference can be observed between the participants that scored a 5 on their tastiness importance scale versus 6 and 7. It would be expected that this trend would continue the lower the importance of tastiness goes, but sadly there was no data for that. This could be explained by the fact that the most important

attribute for consumers is the tastiness (Maehle et al., 2015). Literally, no one wants to eat food they do not find tasty, as these results also show. This implies, that combined with the results from H5b and H6b, that consumers find it most important to eat tasty food, and determine themselves which foods those are based on past experiences. Having that said, due to not finding any significant results, this hypothesis was rejected.

SQ2: To what extent does the type of video content regarding food locality influence food choice? Based on the results and the assessment of the hypothesis, this sub question can be answered. This study has shown, that by implementing videos that highlight the locality of an ingredient in the food item, it is possible to increase the purchase intent of that food item if the consumer finds food sustainability important. Using videos highlighting the tastiness of local produce has little effect on the purchase intention, and are also not significantly perceived to be tastier than products without the highlight. By highlighting the sustainability of local produce, it is possible to increase the purchase intention even more, given that the consumer finds food sustainability important.

#### 4.4 Limitations and future work

While it was possible with this study to answer the second sub-question, there are some limitations when it comes to the study. Firstly, the videos used in this study were experimental. Even through the researcher has attempted to keep the style and color scheme similar, there will always be differences between the videos. Every vegetable will have a different color, and some can look visually more interesting than others. Additionally, not every ingredients growth environment can look equally pleasing - in the case of a carrot, most of the vegetable is hidden underground, and mainly leaves can be seen. For tomatoes, they can be seen hanging on their plant.

Another limitation is the importance of the ingredient highlighted in the video. There was chosen for vegetables-only in these videos, but the impact of each might be different. For example, the role of a local bell pepper in a dish featuring a oven roasted filled bell pepper is different than a local garlic in lasagna. In a study like this with multiple dishes, it could be a challenge to construct a list of food items where the highlighted ingredients are seen as equal. For future work, it would be good to address this with a potential pre-study to create a group of ingredients.

While this experiment had six available food items to choose from, an average online delivery venue would have a larger offering. For this research, it was feared that would trigger information overload. As determined from Study 1 in section 3.2, videos attract attention. However, if was unverifiable if that attention changes when the amount of videos presented are diversified. For this study, participants were asked their perceived tastiness, sustainability and purchase intent for every food item they saw. While there were significant results to be seen there, if a video does not stand out against the rest in a list of possibilities, it may still not be chosen. Future work could include eye tracking to measure where the gaze wanders off to, to get a better understanding how participants decide which dishes they give attention to if there are multiple videos on the menu.

Participants were not asked beforehand what expectations they had from local foods. According to the research explored in section 1.3.2, these both include some form of increased tastiness and sustainability. For future work, it could be beneficial to see the influence on their assumptions of local foods after such an experiment, to see if there were any changes in their expectations.

## 4.5 Conclusion

The goal of this study was to obtain data to answer the research question: "To what extent does the type of video content regarding food locality influence food choice?". With the aid of an online survey and three user groups, it was possible to obtain the data necessary to answer this question. By offering participants six different video food choices, of which three highlighted a local ingredient, and three only an ingredient, data was collected regarding their perceived tastiness, sustainability and purchase intent. With this, it was determined that tastiness has a significant influence on purchase intention, but was difficult to influence with videos. Perceived sustainability was influenced by the videos, and with that also the purchase intent, with major effects for participants that found food sustainability important. While the results of this study are promising, it is important to keep in mind the differences in videos per food dish, due to not being identical to each other.

## Chapter 5

## Discussion

The main research question for this paper is:

#### To what extent do videos regarding food locality in online menu cards influence food choice?

To answer this, two studies were conducted focusing on the *impact of videos versus images* and the *influence of video content regarding food locality*. With these studies, it was possible to obtain enough data to answer SQ1: To what extent do videos in online menu cards influence the process of choosing food?, as can be seen in Chapter 3 and SQ2: To what extent does the type of video content regarding food locality influence food choice?, as seen in Chapter 4. In this section, the main research question will be answered based on the outcome of the two conducted studies.

For these studies, it was possible to get a high amount of participation. With ages spreading from 18 to 72, a wide range of adults were able to give their input. With the foresight of Study 2 focusing on food locality, it was determined to conduct that study in Dutch. By including everyone (participants who reside in different countries and speak different languages), there is a risk that food categories might be defined as local for one, but not for the other. For example, rice could feel local for a participant in Asia, but carrots would not. For someone from the Netherlands, this would be the other way around. By only including participants who live in the Netherlands, there is the chance of having participants in the study that have migrated into the Netherlands, but still have eating patterns and habits that stem from their country of origin, and still feel like the produce from that country feels local to them. Someone that migrated from Asia to the Netherlands could still feel rice is a local food. To minimize these risks, it was chosen to only include participants that reside in the Netherlands and speak

Dutch. With that in mind, this was also applied to Study 1, to avoid risking different behaviors when it comes to being exposed to videos in online menu cards, and having potential differences in the studies due to the participant characteristics. By conducting the first study, it was found that when participants were exposed to a menu consisting of a mixture of videos and images, they felt the videos attracted their attention. Although it was not possible to compare this to the attention drawn by images, it is a promising indication that the participants felt drawn to the content. Although the evaluation of alternatives was influenced by the videos, this did not significantly influence the choice of food. This could be due to the fact that the background research and studies showed the importance of the participants to eat tasty food. The results from Study 1 gave a proper foundation to set up the second study better, by confirming there was no information overload, the attention grabbed, and the influence on the evaluation of alternatives. Study 1 showed widely spread data for the *completeness of information*, which was attempted to be addressed in the second study. It also showed that *just* a video format, would not be enough to significantly influence food choice. Decision complexity was increased with the introduction of videos, however, no conclusive reasons as to why were found. It is theorized that the incompleteness of information, combined with a randomized order of images and videos might have influenced this.

The second study showed the correlation of tastiness on the purchase intent clearly, and the importance of tastiness for almost all participants. While the results showed no significant increase in perceived tastiness or purchase intent from videos that highlighted the tastiness, this was not the case for the sustainability content. An increase in perceived sustainability could be observed from highlighting the food locality, and an even bigger increase when also notifying the sustainability of them. A positive correlation was found between the participants importance of sustainable foods and the effect of this perception on the purchase intent. This shows that there is already an expectation from the customer that local foods imply an increased sustainability. Both studies showed promising results for implementing videos in digital menus, when taking into account that customers that scroll through the menu quicker, are still able to find the information they are looking for.

The studies in this paper were conducted in an online environment, where the participants filled out the survey remotely, similarly to how they would order food from an online delivery platform. With these results showing that videos do have influence on the food ordering process, it might also open up possibilities for restaurants that display their menu cards on e-tablets. Albeit there are different factors at play in a restaurant like ambiance and interior design, it is worth exploring the potential of using videos in those establishments too. All online food ordering platforms can highlight some of their items based on the environmental attributes, but especially venues that already attract a population that is interested in sustainability, highlighting this feature on some items might increase the perception of sustainability and increase purchase intent.

## Chapter 6

## Limitations and future work

The results of the studies were impacted by limitations, which will be explored in this section. For specific limitations regarding Study 1 and Study 2, please take a look at section 3.4 and 4.4.

In the comments, multiple references would be made regarding what kind of foods participants liked and did not like, and the limited offerings on the menu. While the amount of six food dishes was chosen deliberately to avoid information overload, a side effect turned out to be that customers want choice. If a participant was set on craving a dish with meat, there were two options. If they happen to not like any of those two dishes, they would have to compromise for something else. More research will have to be conducted about the effects of videos in longer menu lists.

Additionally, Study 1 featured three videos mixed with images, and Study 2 featured six videos with different types of content. To eliminate order bias, these formats were randomized for each participant. While this is helpful for empirical research, real world menus would probably feature a minimal amount of videos always on the top. Mixing these different media formats throughout the menu could have been confusing for the participants.

Another limitation was the visualization of sustainability. While the addition of windmills attempted to create a connection with sustainability, there are also arguments to be made that producing a windmill costs a lot of energy considering the size and materials used. More research would have to be done with what aspects in images or videos create a connection with sustainability.

In general, when constructing animations regarding food, there will always be personal preferences when it comes to the consumer. Aside from the color scheme discussed in section 3.4, the art style could also be impactful on the interpretation of the customers. While an animated style aids in the creation of effects, real world photos and videos could potentially aid in making these connections too, and give a more realistic representation of the food the consumer can expect.

Another limitation to keep in mind that for both studies, most factors were self assessed by the participants. No direct measurements were done, and they were mostly relying on the honesty of the participant. This could mean that there were personal biases involved.

The surveys were set out on Prolific, a paid survey platform. Due to being paid a flat fee, it is possible that some participants sped through the process while not paying as much attention to the question as would be expected of them. While it was attempted to remove outliers from the data, this is a factor that needs to be kept in mind.

# Chapter 7

# Conclusion

Throughout this work, possibilities of using videos in digital menu cards to influence food ordering choice have been explored. While video formatted content can be found regularly in the form of advertisements and offerings on billboard and menu boards, little was documented regarding the use in online menu cards. Background research showed that by using videos, consumer attention could be grabbed, and purchase intent might be increased. It was hypothesized that by using videos in a digital menu, it was possible to increase the purchase intent of those products. To build upon that concept, it was hypothesized that this concept could be used to influence consumer food choices to eat more local produce. By exploring different types of content, it was attempted to assess what the consumers expectations were from local products, and if purchase intent could be affected by highlighting them as tasty and/or sustainable. For this, two studies were carried out, with the first aiming to explore the consumers decision process when choosing a dish and focusing on the differences between static and video content. The second study focused on the video content, and how that can be used to influence the consumer to eat more local ingredients.

It was confirmed with the first study that videos did have an impact on the consumers decision process, albeit not significantly influencing the final food choice. The participants attention was grabbed, and general interest was shown in the video format. However, participants that glanced over the menu quickly were not able to find the information they were looking for. The introduction of videos did not decrease the decision complexity. These factors were taken into account when designing the second study. The second study found that food choice can be significantly influenced with regards to mentioning the existence of local ingredients in food items. By using multiple user groups, it was possible to obtain results that showed that local produce gets perceived as more

#### Conclusion

sustainable. It also showed that participants that found food sustainability important had a higher purchase intent for those food items. When additionally mentioning the sustainability of the local ingredients, perceived sustainability went up even more. There was no significant increase in perceived tastiness for local ingredients. The study showed that the videos that mentioned the local ingredients and their tastiness had no significant influence on the perceived tastiness or purchase intent.

By conducting these studies, it was possible to gain insight in the consumers decision process when ordering from online menus, what consumers expect from local ingredients and what factors influence the purchase intent of food items featuring them. It was shown that videos have effects on food ordering choice, and that it can be used as a medium to motivate people to eat more local produce.

While not every food can be sourced locally, it is important to be conscious about what we buy and where we buy it from. By taking a moment and trying to appreciate the food from your area, it is possible to reduce the carbon footprint of what you eat. In the end, every step towards a healthier environment is a step in the right direction.

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# Appendix A

#### Study 1 Participant comments

- Ik kreeg geen video's te zien. Ik heb meerdere gerechten aangeklikt en ook de plusjes, maar er verschenen geen video's. Toen ik op volgende klikte kon ik niet meer terug. Gebruik Windows 10 icm Chrome op een desktop.
- 2. Prijs, eventuele bijgerechten
- 3. waar ik nu trek in heb heb ik gekozen
- 4. Het viel mij op dat er enkele videos waren (2 of 3) die niet opnieuw werden afgespeeld en sommigen wel. Had niet echt invloed op mijn keuze, maar viel mij wel op en vroeg mij af waarom tijdens het bestellen
- 5. de aantrekkelijkheid/detail van de illustratie van het gerecht.
- 6. het waren maar weinig gerechten die ik zou kiezen als VLEESETER.
- 7. ik heb mijn keuze gemaakt op basis van mijn smaak en meestal kies ik iets wat ik zelf thuis niet zo snel zou maken (of iets wat zelfgemaakt toch minder goed is dan in een restaurant). Daarnaast vond ik de videos een beetje afleidend met name omdat er ook plaatjes tussen zaten (ik ging kijken naar welke gerechten plaatjes waren en welke bewogen)
- 8. Ligt er ook veel aan wat voor soort restaurant het is, met specialiteiten etc
- 9. Ik weet al wat de gerechten zijn, maar bij onbekende gerechten heb ik liever een plaatje van hoe het er echt uitziet i.p.v een animatie die niet erg realistisch is. Want een tekening ziet er sowieso anders uit dan het echte gerecht.
- 10. Had meer zin in vis en hou niet van zalm
- 11. ik eet vega dus dan zijn er sowieso minder opties en is de keuze ook makkelijker te maken
- 12. Prijs van het gerecht, voedingswaarde, realistisch plaatje, video van het gerecht zelf en geen animatie, en de grootte en het portie van het gerecht dat je bestelt, krijg je naar je mening wel genoeg voor wat je betaalt.
- 13. SMAKELIJKHEID VAN DE GERECHTEN
- 14. Ik hou van pizza en niet zo zeer van de rest, heb niet gelet op de grafische stijl van de media
- 15. Ik heb ADHD-I
- 16. Ik ben vegetarier dus dat nam ik wel mee in mijn keuze. Dat gezegd hebbende, als alle opties vega waren had ik waarschijnlijk nog steeds deze keuze gemaakt
- 17. Normaal is de prijs ook belangrijk voor mijn keuze.
- 18. Ik heb kort hiervoor gegeten dus dat heeft invloed gehad op mijn keuze.
- 19. Ik probeer op dit moment wat gezonderde keuzes te maken, dus vandaar dat ik voor een niet-gefrituurde optie heb gekozen
- 20. vegan
- 21. De snelheid van de animatie kan een factor zijn. bij een trage of zeer lange animatie kan iemand het minder aantrekkelijk vinden als er ook andere opties zijn op het menu die korte animaties hebben of helemaal geen.
- 22. Nee, maar de video's waren irritant. Net als ik alle tekst wilde lezen verdween het. Dan moest ik wachten tot het weer terug kwam.
- 23. filmpje 1x is leuk. herstart is irritant.
- 24. Ik ben vegetariër waardoor de keuze sowieso voor mij al beperkter was
- 25. De tekst was het voornaamste voor mij.
- 26. Als ik bestelis het altijd "lekker ongezond" en ik ben een vleeseter dus voor mij waren de opties its te karig en fish&chips kwam wel het dichtst in de buurt van een cheatmeal.
- 27. ik ben vega
- 28. De videos/GIFs maakten het lastiger om snel een beeld van alle gerechten te krijgen aangezien het plaatje van het gerecht én de naam van het gerecht verdwenen/verschenen. Het zou makkelijker geweest zijn wanneer de naam bleef staan en alleen het plaatje geanimeerd zou zijn geweest.

- 29. Ik kijk op menukaarten altijd naar de ingrediënten die in een gerecht zitten (bijvoorbeeld of er uien o.i.d. op zitten), maar dit stond er niet bij. Daarom heb ik voor de pizza gekozen, omdat ik dit normaal ook graag eet en ik niet denk dat er verrassingen op zullen zitten.
- 30. bij de video's verdween ook de tekst. Alleen 'de titel' boven de video bleef staan. Zo wist je niet wat het gerecht inhield als het plaatsje weg was dus lastiger kiezen
- 31. In een aantal GIFjes verdween de tekst iedere paar seconden, omdat het een cartoon versie van het eten was moest ik wachten tot de tekst terug kwam alvorens ik wist wat voor gerecht het was. Verdwijnende tekst is niet handig in een menu kaart. De video's met bewegende achtergrond of gerechten waren wel duidelijk. Een digitale menukaart met GIFjes is juist interessant. Het is wel belangrijk om een alternatief aan te bieden voor digibeten, ouderen en mensen zonder mobiele telefoon.
- 32. Ik heb vooral gekozen voor het gerecht wat ik lekker vond. Maar de video's trokken wel meer mijn aandacht. Ik vond het wel storend dat het bord kwam aangeschoven in de video en dat de tekst soms verdween.
- 33. ik ben vegetariër, dus er bleven maar 2 keuzes over. Frietjes en burger is zo ongeveer het meest standaard, dus ging ik voor de pasta. De video had verder daar weinig mee te maken.
- 34. ik koos alleen uit de vegetarische opties
- 35. ik ben een vegetariër, alles wat vlees bevat kijk ik nooit erg aandachtig naar
- 36. Ik eet geen vlees

# Appendix B

#### Study 2 Participant comments

- De GIF's maakte het gevoel van 'lokaal' zo generiek, dat ik er een minder sterk gevoel bij kreeg dan slechts het woord 'lokaal'. Tevens: Windmolens in de GIF maakte me minder geneigd het gerecht te overwegen
- 2. ik ben vegetariër
- 3. hoeveelheid groen in de videos, meer groen ziet er beter uit, bruin/zand niet echt
- 4. Wie wil eten bestellen waar je landbouw op ziet ipv het eten wat je krijgt voorgeschoteld? Ik was weggelopen bij dit soort hipstertenten die doen ALSOF ze geven om de aarde. ALLES DRAAIT OM GELD niet om duurzaamheid.
- 5. Nee, leuk onderzoek. Bedankt!
- 6. ik keek de eerste keer helemaal over het "lokale x" heen. Stond te ver van de andere tekst af.
- 7. Doordat de groenten werd laten zien, kies je daarbij voor iets wat lekker is, maar eigenlijk wil je juist dat benadrukt wordt wanneer iets Vega is ivm duurzaamheid
- 8. ik zou niets bestellen en ergens anders gaan eten.
- 9. De videos stellen eerlijk gezegd heel weinig voor... Er staat een veld met wat wortels, terwijl het hele gerecht dan bijvoorbeeld runderstoof is. Wat heb je dan aan de video denk ik dan
- Ik ben een vegetarië:
- 11. Ik eet veganistisch dus alle gerechten spraken mij niet aan. Tenzij erbij de vegetarische gerechten vegan kaas gebruikt kan worden, dan zou mijn keuze uitgaan naar de risotto.
- 12. Jullie hebben het over videos, maar het waren GIFS
- 13. Of er ingrediënten in zitten, die ik wel lus.
- 14. het gaat nu (deels) om de duurzaamheid van het eten. IK zou ook willen weten waar het precies vandaaan komt. (kaas bijvoorbeeld of waar het vlees vandaan komt)
- 15. Ik kies graag iets wat ik thuis niet zo goed kan maken.
- 16. Ik ben Vega, dus ik had wel het gevoel dat ik maar 2 opties had
- 17. Ik vond dat de video's vrij weinig te maken hadden met het algehele gerecht
- 18. ik lust geen vis dus die gerechten zou ik sowieso niet kiezen en vind ik sowieso vies
- 19. Ik ben vegetarisch, dus ik lette daar vooral op. Ik koos ook gelijk voor een vega optie.
- 20. ik ben veganistisch, dus misschien is mijn kijk op duurzaamheid en hoe graag ik iets zou bestellen ietwat extreem
- 21. Ik ben veganist en vind gerechten met dierlijke producten per definitie niet duurzaam. Ik zou in het echte leven dus niks gekozen hebben.
- 22. De gerechten zijn allemaal zo verschillend dat het lastig is om eentje te kiezen, vooral omdat er in elk gerecht iets zat wat ik persoonlijk niet zo lekker vind
- 23. De keuze tussen vegetarisch en soorten vlees (ik zou liever iets bestellen met vlees, maar geen varken).
- 24. Ik kreeg geen beeld en/of smaak bij de gerechten, zeker niet de vlees- en visgerechten omdat er groenten in de video's voorkwamen.
- 25. Ik zou geen van deze gerechten kiezen omdat ik veganist ben. Een gerecht met dierlijke producten erin verwerkt is sowieso niet duurzaam.
- 26. Het feit dat één van de ingrediënten helemaal aan de rechterkant stond vond ik ondanks het plaatje zeer afleidend. De informatie was daardoor moeilijk te verwerken wat het maken van de keuze bemoeilijkte.
- 27. Ik eet geen vis en ook geen varkenshaas, dus deze gerechten zou ik sowieso niet kiezen. Ik heb dus beoordeeld hoe ik denk dat deze gerechten zouden kunnen smaken.
- 28. liever een plaatje van het gerecht, ipv een ingrediënt. Dus een belangrijke factor voor mij was dat je alles moest doorlezen om een keuze te kunnen maken en eerder tot een beslissing kan komen bij het tonen van het gerecht.

- 29. Ja, ik ben vegetariër. Om die reden vind ik alle vis/vlees gerechten sowieso niet lekker/aantrekkelijk. Dit was interessant geweest om ook te vragen aan het begin van de studie. Daarnaast is vlees/vis/kaas etc. ook niet duurzaam (het kan helpen om bij dierlijke producenten dan in ieder geval voor iets lokaals/biologisch te kiezen).
- 30. Weinig vegan en vegetarische opties. Dit heeft (voor mij) invloed op duurzaamheid van het gerecht.
- 31. Dieet (ik ben bijv. vegetariër)
- 32. Bij "Ik heb geen video's op het scherm gezien" heb ik persoonlijk gekozen voor Niet mee eens en niet mee oneens, omdat ik gifs totaal niet als video's zie, maar als bewegende plaatjes. Ik weet wel dat in de context van dit onderzoek de gifs als video's worden gezien/uitgelegd, maar omdat ik mijn persoonlijke mening moest geven heb ik dus gekozen voor Niet mee eens en niet mee oneens.
- 33. Ik kreeg zin in de risotto omdat de kleuren van die video matchen met het herfstachtige van het gerecht.
- 34. Ik zag een kas op de video en dat heeft mijn keuze voor minder duurzaam bepaald, al weet ik niet of een kas wel of niet duurzaam is. En ik vond de video's ook niet zo heel veel toevoegen, maar daar zullen jullie wel een reden voor hebben.
- 35. Allergenen
- 36. Ik ben vegetariër, dus mijn keuze was beperkt.
- 37. Ik ben vegetarier en ik lust absoluut geen risotto
- 38. Ik ben vegetariër maar eet het liefst helemaal veganistisch, dus alle vlees/visgerechten waren sowieso niet relevant voor mij. Ik had ook de pompoenrisotto kunnen kiezen ipv lasagne maar ik vind pompoen niet zo lekker.
- 39. Voornamelijk bepaalde groente die ik niet lust was een belangrijke factor.
- 40. Mijn persoonlijke dieet vegetarisch
- 41. De tekst.
- 42. De locatie van de gewassenen & de omgeving ervan speelde ook een rol. Bijvoorbeeld Platteland vs Kassen
- 43. Enige wat mij aansprak was de keuze die ik maakte. De GIFs van de bij behorende groenten was erg apart.
- 44. Ik vond het vooral afleidend, het voegde niets toe aan de keuze, de nadruk van de video lag op onderdelen van het gerecht die ik het minst relevant vond.
- 45. specifieke ingredienten
- 46. Als ik uit eten ga of iets bestel dan speelt mee of ik iets zelf regelmatig maak. Daarnaast speelt mijn voorkeur voor vis over vlees bij zulke keuzen ook een rol. Tevens heeft waar ik nu op dit moment qua variatie zin in heb een rol gespeeld.
- 47. Ik heb geantwoord geen video's te zien bij de gerechten. Er waren bewegende beelden maar geen video's die werden afgespeeld.
- 48. gek genoeg werd ik meer getrokken naar het plaatje met de meeste beweging erin. Erg apart.
- 49. ik eet enkel halal en natuurlijk speelt prijs ook een rol
- 50. de bewegende plaatjes vond ik niks toe voegen
- Animaties deden er totaal niet toe en de tekst rechts was eigenlijk een beetje irritant (veel beweging in de ogen om de volledige ingrediënten te lezen)
- 52. Vegetarisch of niet
- 53. het soort eten (vlees,vis vs vegetarisch)
- 54. Er waren maar twee vegetarische gerechten.
- 55. Ik ben veganist, dus zou sowieso nooit kiezen voor een gerecht met vlees, en eigenlijk ook niet met kaas.
- 56. Afbeeldingen met kassen schrokken wat af, de afbeeldingen met "boerenland plaatjes" trokken me meer.
- 57. ik eet veganistisch
- 58. Ik ben pescetariër, dus de vleeskeuzes vielen af. Vlees vind ik sowieso niet duurzaam.
- 59. Het soort eten/ of de keuken waar je het meest van houdt.
- 60. ik eet geen vlees, dus een aantal gerechten vielen sowieso al af
- 61. Ik eet vega
- 62. De vele puntjes (...) vond ik weinig toevoegen. Het was net alsof het niet af was. Ook vind ik de animaties niets toevoegen, het leidt eerder af.
- 63. Ik ben vegetariër (en hou niet zo van courgette), waardoor er maar 1 gerecht overbeleef voor mij om te kiezen. Vandaar dat de rest voor mij afviel (al geloof ik zeker wel dat die lekker zouden zijn geweest!) Ik heb de vleesgerechten beantwoord met het idee dat ik wel vlees eet (wat ik ook wel een tijd heb gedaan), maar ik zou deze gerechten niet echt overwegen
- 64. ik ben vegan
- 65. De bewegende wolkjes leidden enorm af van de inhoud van de gerechten, het zorgde ervoor dat ik niet goed kon vergelijken
- 66. ik eet geen vlees
- 67. Sommige ingrediënten vind ik niet lekker, dus zou dat gerecht dan sowieso niet kiezen
- 68. Ik besloot twee jaar geleden volledig plantaardig te eten door de realisatie over de impact van de veeteelt op de aarde. Als er aan mij gevraagd wordt of een gerecht duurzaam is, dan is dat wat mij betreft sowieso dus niet het geval op het moment dat er een dier in is verwerkt.

#### Appendix B

- 69. ik vond het afwijkend dat er bij vis en vlees gerechten groenten werden getoond in de video, daarom ging ik uiteindelijk voor een vegetarisch gerecht
- 70. Of de producten seizoensgebonden zijn, maar dat is meestal het geval bij lokaal geproduceerd voedsel. De afstand die het voedsel moet afleggen om op de eindbestemming te komen vind ik ook interessant om meer over te weten.
- 71. de video's leiden heel erg af waardoor het lastig was om de ingredienten goed te lezen
- 72. Ik vind een gif niet zo fijn om naar te kijken
- 73. ik ben vegetariër, onder andere vanwege duurzaamheidsoverwegingen. Hierom was er sowieso minder keuze voor mij, dit speelt mee in hoe ik de vragen heb beantwoord.
- 74. Ik ben vegetarier en eet geen vlees of vis, deze opties waren daarom al snel afgeschreven
- 75. Ik ben pescetariër
- 76. ik ben vegetariër dus vandaar dat ik geen overweging zou maken om de gerechten met zalm/ander vis/vlees te nemen, anders zou ik het misschien wel doen. nu heb ik zin in lasagne... en in pompoen...... succes met de verwerking!!!!!
- 77. het zien van de gewassen zorgt er niet voor dat ik een bepaald gerecht eerder ga kiezen of niet
- 78. hoe de plaatjes eruit zagen
- 79. Doordat ik vegetarisch eet voelde ik me een stuk minder aangetrokken tot de opties waarbij vlees of vis zat. Toch goed dat jullie ook vegetarische gerechten erbij hebben gedaan!
- 80. Videos waren overbodig en laten niets van het gerecht zien
- 81. De tekst bij de video's vond ik belangrijker. Daarin stond duurzaam of niet. Een plaatje van groente betekent nog niet duurzaam.
- 82. Simpelweg vermelden dat een product/gerecht duurzaam is wil nog niet zeggen dat dat ook daadwerkelijk zo is. Het label "duurzaam" op deze menukaart betekent niks zonder kwantificatie (bijv. afstand transport/CO2 uitstoot nodig voor transport per ingredient). Alleen "duurzaam" als label vermelden is soortgelijk aan een geldbedrag noemen zonder valuta erbij, de waarde ervan is niet makkelijk serieus te nemen.
- 83. Gister al zalm gegeten, waardoor ik oa niet voor het zalm gerecht koos
- 84. Ik ben niet zo'n fan van kabeljauw, varkensvlees of courgette. Dit liet een aantal gerechten al afvallen.
- 85. Ik lust absoluut geen vis
- 86. Ik houd niet van champignons en ook niet van bloemkool.
- 87. Ik vind de term "video's" wel wat overdreven voor bewegende gif plaatjes.
- 88. de keuze om er "duurzaam" bij te zetten gaf een extra motivatie om het gerecht te kiezen.Ook het plaatje met de kas erbij gaf het een duurzamere uitstraling.
- 89. Mijn keuze tussen de verschillende groentes werd wat overschaduwd qua duurzaamheid door de verschillende keuzes in vlees, zuivel en vis
- 90. persoonlijke voorkeur voor bepaalde ingredienten, in mijn geval houd ik niet zo van champignons dus zal ik nooit een gerecht kiezen waar dat in zit
- 91. De bewegende beelden trokken mijn aandacht naar één specifiek ingrediënt uit het gerecht, waardoor dat als het belangrijkste ingrediënt op mij overkwam en daarmee meer invloed had op of het gerecht me aansprak.
- 92. ik houd niet van vlees of vis, dus dat beperkte de keuzes.
- 93. Ja, ik ben veganist. Er waren geen veganistische opties, dus heb ik voor een van de vegetarische opties gekozen. Echter, dit zou ik in werkelijkheid ook niet gekozen hebben, omdat deze kaas bevat. Mijn keuze was dus volledig gebaseerd op de aanwezigheid van dierlijke producten, en vervolgens op een keuze tussen een van de twee vegetarische opties.
- 94. Ik ben pescetariër
- 95. Ik heb een hekel aan ui, dus ik ging sowieso voor een gerecht waarin geen ui zou zitten en die waren er maar weinig
- 96. In een restaurant vind ik lekker eten belangrijker dan duurzaam eten. Thuis zou ik duurzamer belangrijker vinden.
- 97. ik ben vegetariër, dus ik zou bij voorbaat geen vlees of vis kiezen.
- 98. Ik eet alleen vegetarisch, dus ik vond het moeilijk om de niet-vegetarische gerechten te beoordelen (bijvoorbeeld hoe lekker ze waren). Ook heb ik daar bijvoorbeeld altijd ingevuld dat ik ze helemaal niet wilde bestellen, de reden daarvoor was dan dat er vlees of vis in zat.
- 99. Ik kan vrij slecht tegen bepaalde "textures" in eten. Aardappel puree bijvoorbeeld vind ik als smaak best oké maar de textuur maakt me zo goed als misselijk. Ik vind duurzaamheid best belangrijk maar als ik het uiteindelijke product niet kan eten, dan had ik het beter niet kunnen bestellen
- 100. Ik eet geen-nauwelijks vlees
- 101. niet bij de keuze, maar een opmerking: de eerste ingrediënten vielen weg doordat het laatste ingrediënt zo prominent werd benoemd.
- 102. Ik eet vegetarisch, dus zou de opties met vlees sowieso niet overwegen.
- 103. Ik ben vegetarisch
- 104. De video's hadden voor mij persoonlijk absoluut geen invloed op mijn keuze
- 105. Ik kan niet tegen prei

#### Appendix B

- 106. Sommige videos waren kleurrijker en dus wat aantrekkelijker (Bijv bij wortels veel bruin dus minder aantrekkelijk dan bijv de kleurrijke paprikas)
- $107.\;$  de prijs is ook belangrijk.
- 108. wat je lekker vindt, ik lus geen vis en wil varkensvlees vermijden.
- 109. Ik ben een vlees eter, maar aangezien alle vleesgerechten groenten video's lieten zien heb ik maar gekozen voor de vegatarische lasagne, want de tomaten matchen met mijn idee van lasagne
- 110. Weet niet meer zo goed welke keuze ik had gemaakt maar het moest degene zijn die ik heb lekkerst heb gerate. Factoren die mee speelde waren dat ik vegetarisch ben en allergisch voor tomaten.
- 111. Ik probeer meer vegetarisch te eten + ik houd niet van enorme stukken vlees, vandaar dat ik de vleesgerechten ene minder hoog cijfer gaf.
- 112. Ik vond de gif's niet echt iets toevoegen aan mijn keuze voor eten. Wellicht zou dat wel meer zo zijn als het echte real life gifjes waren; nu zag het er allemaal gewoon heel prima uit zo geanimeerd.
- 113. Ik vond de videos weinig toevoegen aan de menu kaart en vond ze ook erg afleidend. Als de tekst anders had gestaan en de videos meer van het gerecht zelf lieten zien is het effectiver denk. Ook dat de video op verschillende manieren beweegt is vervelend
- 114. De lasagna was de enige optie voor mij ivm dieet en allergieën. Anders zou ik voor de risotto zijn gegaan.
- 115. Ik ben vegetariër