

Estoril Higher Institute for Tourism and Hotel Studies

Master's in Food Design

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Experiencing and Envisioning Food – Designing for Change

re·lem·brar®

Ao sabor dos tempos

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re.lem.brar: Ao Sabor Dos Tempos

A Sensory and Interactive Sharing of Knowledge with Portugal's Forgotten
Ingredients.

Project Work to Obtain The Master's In Food Design

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Imagine a meal with many dishes (...). There are two things in that feast, aside from a great deal of hidden labor. There are dozens, if not hundreds, of species of plants and animals, a sort of culinary menagerie. There is also a huge body of culinary knowledge, the accumulated knowledge of growing, harvesting, processing, and preparing foods handed down and improved upon over generations. A feast is a bit like a book, but a tasty book we read eating. Now imagine that the dishes start to disappear one by one. (...) Slowly the table becomes less interesting, less captivating, and as each species disappears, the accompanying cultural knowledge vanishes with it.

(Newman, 2019, p. 7)

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Index

Acknowledgments	ii
Resumo	vii
Abstract	viii
List of Abbreviations and Symbols (Glossary)	ix
Introduction.....	1
RESEARCH	3
General Introduction	4
Culinary Extinction	5
What is Culinary Extinction?	7
Behind the Extinction	8
Biodiversity	11
The Impact.....	13
More Than Just Food.....	14
From Sea to Land, From Farm to Table	15
The Course of Action	17
PROJECT.....	20
Introduction to Concept and Objectives	21
Brainstorming.....	24
Inspiration – Mood boards, Storyboards, Look & Feel	33
General Concept.....	39
Prototype	47
Name, Visual Identity and Branding.....	56
Gastronomic Experience.....	62
Conclusions.....	72
References	75

Appendix	81
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List of Figures

Figure 1 Brainstorming around culinary extinction. (Own authorship)	22
Figure 2 Territory Map (Own authorship)	25
Figure 3 Mind Map - How to bring forgotten Portuguese ingredients to the table? (Own authorship).....	29
Figure 4 Value Proposition Canvas (Own authorship).....	30
Figure 5 Mind Map - Sensory/Interactive Cookbook (Own authorship)	30
Figure 6 Systematic Design Practice Wheel (Own authorship)	31
Figure 7 Systematic Design Practice Wheel.....	32
Figure 8 Hvísl - Whispers of Iceland (Lanthiez & Curé, 2014).....	34
Figure 9 All About Cheese (Jeon, 2021)	34
Figure 10 NAMUL (English version) – magazine (NAMUL (English version) - magazineb, 2021).....	35
Figure 11 Meaningful Meal Experience Through Simple and Innovative Design by RONG Design (Meaningful Meal Experience Through Simple and Innovative Design by RONG Design - World Brand Design Society, 2020).....	36
Figure 12 The Art of Ingredients / NAMA Sushi (Creative, Bui, & Nguyen, 2020)	37
Figure 13 Taste: The Infographic Book of Food by Laura Rowe, illustrations by Vicki Turner (Harris, 2015)	37
Figure 14 Unexpected by Veri Ann (Ann, 2018)	38
Figure 15 Anatomy of A Recipe by Leonie Anholts (Tzenkova, 2022)	38
Figure 16 Seed Paper by Henry Lopez (Lopez, 2013)	38
Figure 17 Business Model Canvas (Own authorship)	43
Figure 18 Prototype of sensory box with its contents for the issue about barbela wheat (Own authorship)	51
Figure 19 Details of the prototype of sensory box with its contents for the issue about barbela wheat (Own authorship)	52
Figure 20 First version mockup of "From the Editor" section of the magazine (Own authorship)	53

Figure 21 First version mockup of "Contents" section of the magazine (Own authorship)	53
Figure 22 First version mockup of "Report" section of the magazine (Own authorship)	54
Figure 23 First prototype of the magazine cover (Own authorship)	58
Figure 24 Logo and tagline of re.lem.brar (Own authorship)	59
Figure 25 Color pallet of re.lem.brar (Own authorship)	59
Figure 26 Cover of the first issue of re.lem.brar (Own authorship)	60
Figure 27 Final prototype of the sensory box of the first issue of re.lem.brar (Own authorship)	61
Figure 28 Customer Journey of the gastronomic experience (Own authorship)	68
Figure 29 Details of the gastronomic experience (photography and edition by Gabriel Vieira)	69
Figure 30 Details of the gastronomic experience (photography and edition by Gabriel Vieira)	70
Figure 31 Details of the gastronomic experience (photography and edition by Gabriel Vieira)	71

List of Tables

Table 1 Brainwriting exercise with the 6-3-5 method (Own authorship)	27
Table 2 Bundle Ideas (Own authorship)	28
Table 3 Different phases of the gastronomic experience (Own authorship)	66

Resumo

Os alimentos desempenham um papel essencial na sociedade atual mas, por mais que sejam importantes para nós, os seres humanos e o planeta Terra, estamos rapidamente a levar à extinção a biodiversidade que temos à nossa volta com as nossas ações – um problema recorrente no sistema alimentar atual.

Durante esta investigação analisamos exatamente o que é a extinção culinária e o que está por detrás dela – para percebermos melhor como surgiu este conceito e em que fase nos encontramos. O conceito de biodiversidade é também analisado, bem como o impacto que estas mudanças estão a criar no nosso sistema alimentar e cultura.

A partir daí, investigamos o papel que os alimentos têm, não só nas nossas vidas, mas também na nossa cultura e a sua importância para o mundo, fazendo-se seguir pelos números destas espécies ameaçadas, bem como o impacto que têm no nosso sistema alimentar.

Concluimos que, se alguns dos nossos antigos ingredientes portugueses caíssem em desuso, certamente seriam esquecidos e, um corpo de conhecimento substancial seria inevitavelmente perdido e, nós, como indivíduos, deveríamos tentar fazer uma mudança no sistema alimentar.

Por fim, apresentamos como protótipo a nossa primeira edição da caixa sensorial e interativa sobre o trigo Barbela, a nossa proposta de um produto para partilhar o conhecimento de um dos ingredientes esquecidos de Portugal.

Palavras-chave: alimentos esquecidos; tradição; identidade; herança; culinária; extinção de alimentos.

Abstract

Food plays an essential role in today's society but, as much as it is important for us, humans, and the planet Earth, we are rapidly driving the biodiversity that we have around us to extinction with our actions – a recurrent problem in today's food system.

During this research we analyze exactly what is culinary extinction and what is behind it – to better understand how this concept emerged and in what stage we are in. The concept of biodiversity is also analyzed, as well as the impact these changes are creating in our food system and culture.

From there, we investigate the role that food has, not only in our lives, but in our culture and its importance to the world, followed by the numbers of these endangered species as well as the impact they have on our food system.

We conclude that, if some of our ancient Portuguese ingredients fall into disuse, they will certainly be forgotten, and a substantial body of knowledge would be inevitably lost and, we, as individuals, should try to make a change in your food system.

Finally, we present as a prototype of the first issue of our sensory box on *Barbela* wheat, our take on a product to share the knowledge of one of the Portuguese forgotten ingredients.

Keywords: forgotten foods; tradition; identity; heritage; culinary; food extinction; food extinction.

List of Abbreviations and Symbols (Glossary)

FAO – Food and Agriculture Organization of the United Nations

QR Code – Quick Response Code

IUCN – International Union for Conservation of Nature

FORK Organization – Food Design for Opportunities, Research & Knowledge

Introduction

The project *re.lem.brar* was developed within the scope of The FORK Organization Challenge on Experiencing and Envisioning Food: Designing for Change, proposed in the academic year of 2021/2022 in the Food Design master's degree program, focused on the proposed themes of the Next Generation of Consumers.

In the first part we raise the issue of culinary extinction, understanding what it is and its causes, what is behind it, the impacts, its importance and finally the course of action that should be taken.

In a second part, we develop what is the project *re.lem.brar*, created to help tackle this problem in our global food system and to raise awareness among consumers, focusing on the problem of culinary extinction, with the ultimate objective of creating an interactive and sensory magazine with themed issues about Portugal's forgotten ingredients – products that our people previously used and were part of our diets, but over time, disappeared or fell into disuse – products that are part of our history and customs, from *beldroegas* (*Portulaca oleracea*), *camarinha* (*Corema album*), tuna *muxama*, among others.

Accordingly, the goal is to create a more interactive way to share the knowledge about these ingredients and encourage consumers to “rediscover” these species, while appealing to a more human sensory side, create memories and follow a more sustainable diet, based on local resources, in order to safeguard both the Portuguese gastronomic heritage, as well as the traditions and knowledge, and the culinary techniques linked to these products.

The magazine will be accompanied by a sensory box, with items that both refer to the ingredient and will elevate the user's experience when it comes to getting to know these forgotten species, interacting with the human senses, and not just vision.

As project work, at the end, the prototype of one of the issues of this magazine will be presented, focused on a forgotten ingredient – in this case, *barbela* wheat, with the aim of getting to know the product, its characteristics and those of the environment where it is produced, understanding the reason why that was no longer used, discovering ways to incorporate it back into our diet, sharing recipes and reports from producers and chefs who work with the chosen ingredient, thus creating a narrative around this species, encouraging the sharing of knowledge about them.

RESEARCH

General Introduction

Food plays a critical role in today's society, it is an essential part of people's lives, and not just a means of survival. As many authors concur, there is a strong relation between food and culture – including religion, traditions, and communication, and it is undeniable that we often end up using food as a mean to retain our cultural identity – this referring to a specific set of values, knowledge, language, rituals, lifestyles, attitudes, beliefs, folklore, rules, customs, and others.

We grow up eating food from the environment that surrounds us, it is something that ends up being part of our identity and, it is something we associate with our memories, hence its importance as part of a culture, we should consider food as something that shapes us, our identities, our cultures and, in the end, our society. (Sibal, 2018, p. 3)

The knowledge about these traditional cuisines is passed down through generations, to express their culture and identity and embrace our heritage. (Le, 2017) But our repetitive actions, as humans, are taking a toll on our planet's biodiversity and, soon enough, if our actions do not change, the world will be stripped of its heterogeneity.

There is an urgency to protect what is part of our culture, our tradition. Even though we have already lost plenty food species, we should mourn those ingredients, accept that we have lost them and dedicate our time to protect the species that are left, to protect the endangered species rather than somehow try to resurrect or bring back already extinct species. (Newman, 2019, p. 278) Each one of the species that the world has already lost is an opportunity to teach us an important lesson about today's global food system, it shows us the ecological vulnerabilities threatening our planet's biodiversity, and, we may come to the conclusion that our ecosystems are not in balance and, the loss of other food species is certain to happen if we do not take any kind of action. (Newman, 2019, p. 19)

Culinary Extinction

What an individual human diet looked like even a few thousand years ago isn't easy to untangle from the archaeological record, let alone further back in our evolution, but we do know it was far richer in diversity than the one most of us eat today.

(Saladino, 2021, p. 21)

Extinction is in no way an unfamiliar concept to us, it may be even, as Kolbert refers, the first scientific idea that children nowadays must grapple with, when they are given toy dinosaurs or illustrated dinosaurs' books. (Kolbert, 2014, p. 26)

Slowly, ancient food species are falling into disuse, disappearing from our diets, our memories, and our knowledge. Even though the possible ingredients that could be worked on this project are not for sure extinct, they are difficult to find – either because only a few producers still work with them, or because they are not profitable – and, witnessing how that happens in real time is unnerving. To think that in a few years or decades, if these ingredients inevitably stop being used, and the knowledge about them is lost, they could easily become extinct, like other ingredients worked on and researched by other authors.

As mentioned in *Lost Feast*, the forces of globalization, industrialization and ecological collapse are a threat to the richness of our culinary products, which makes our cultures distinct and unique. As time passes, these foods are becoming rare and, therefore, much more expensive. Some of our world's food is unequivocal facing the risk of extinction – as is the case of *Hadza Honey* from Tanzania, *Kalvica Wheat* from Anatolia, *O-Higu Soybean* from Japan, *Vanilla Orange* from Sicily, *Qvevri Wine* from Georgia, and many other (Saladino, 2021) –, while others have already become extinct. (Newman, 2019, p. 7)

As Dan Saladino mentions in *Eating to Extinction: The World's Rarest Foods and Why we Need to Save Them*, from the 6.000 plant species we, as humans, have eaten over time, now we mostly eat just nine, of which just three provide 50% of all calories – these being rice, wheat and maize¹ - add potato, barley, palm oil, soy and sugar², and we have 75% of all the calories that fuel our human species. (Saladino, 2021, p. 21)

Since the Green Revolution, our diets depend more on food that is produced far away from the places we live in and, as thousands of foods have become either endangered and/or extinct, a small number of foods have risen to dominance such as refined grain, vegetable oil, sugar, and meat. In the context of two million years of human evolution, all the dietary shifts that are taking place globally, point towards uniformity in our diets, and, unfortunately, this is happening just as we are beginning to understand the importance of this diversity to our own health.

The richer our gut microbiomes are, the better for us, therefore, the more diverse our diet is, the richer our gut microbiomes become, because of the many bacteria, fungi and other microbes our organism hosts. (Saladino, 2021, p. 21)

¹ Also known as corn.

² Beet and cane.

What is Culinary Extinction?

As Lenore Newman explains in a more approachable way in an interview with Mark Crawley, “culinary extinction refers to species that have become extinct primarily because we eat them, and we just could not say no to second helpings until they were all gone. And it turns out there has been a number of species we have eaten right off the planet.” (Crawley, 2019)

In biology, the term extinction refers to the “drying out or extermination of a species” and it “occurs when species are diminished because of environmental forces such as habitat fragmentation, climate change, natural disaster, overexploitation by humans, and pollution, or because of evolutionary changes in their members”, the latter being genetic inbreeding, poor reproduction and decline in population numbers. (Gittleman, 2022)

Many species have become extinct because of human activities such as “hunting and overharvesting, the conversion of wetlands and forests to croplands and urban areas, pollution, the introduction of invasive species and other forms of human-caused destruction of their natural environments” and, currently, it is estimated that the rate of human-induced extinctions is about 1.000 times greater than the past natural (background) rates of extinction, leading many scientists to believe we are living in the sixth mass extinction. (Gittleman, 2022)

Considering the definition given by John L. Gittleman, we can reach consensus that culinary extinction happens because, inevitably, we lead some species to extinction because of our actions in the planet earth and, thence, we lose those species/ingredients in our gastronomy.

Behind the Extinction

What could underlie this culinary extinction? In *The Sixth Extinction: An Unnatural History*, Elizabeth Kolbert explains that extinction firstly emerged as a concept in revolutionary France, thanks to the now called *American Mastodon* and the naturalist Jean-Léopold-Nicolas-Frédéric Cuvier. Until then, the concept of extinction did not strike us as an obvious idea.

In the tenth edition of *Systema Naturae* published in 1758 by Carl Linnaeus, the author introduced his system of binomial nomenclature of animal species, but made no distinction between the living and the dead. Even though there were evidence that showed the existence of “strange creatures that no one had ever seen”³, Linnaeus only listed species that existed from his point of view.

Cuvier arrived in Paris in early 1795 to teach at the Paris’s Museum of Natural History but, in his spare time he explored the museum’s collection. He spent long hours studying and comparing specimens that arrived at the museum, one of them being the bones that Longueuil would send to Louis XV and which led the naturalist on the 4th of April of 1796 to present the results of his research. He had recognized that the elephant remaining at the museum belonged to different species – one of their distinguishing characteristics was their teeth⁴. After some more examination he concluded that the teeth did not exactly resemble those of and elephant and that they belonged to an entirely distinct species and, that occurrence called on the question of “what has become of these two enormous animals of which one no longer finds any living traces?” For the first time, they were talking about lost species.

³ These being remaining of animals that are now identified as trilobites, belemnites, and ammonites.

⁴ The remains from the elephant from Sri Lanka had molars with wavy ridges on the surface, while the elephant from the Cape of Good Hope had teeth with ridges arranged in the shape of diamonds.

With these discoveries, Cuvier introduced a new way of looking at life, that species died out and that it was not an isolated phenomenon, but a widespread one; the facts were consistent among themselves and that lead to believe in the existence of “a world previous to ours” and led to the question of how was the Earth before we lived in it and, what kind of revolution was able to wipe out all those species that no longer existed.

Cuvier had succeeded in establishing extinction as a fact, for the first time in our human history.

After only four years after presenting the latter findings, Cuvier’s fossil zoo already included twenty-three species that he deemed to be extinct, making him question that, if in so little time so many lost species had been found, how many were supposed to be out there still to be recognized as such.

Even though he offered this idea of life being a long, mutable and “full of fantastic creatures that no longer existed”, Cuvier was opposed to the concept of evolution⁵ and would humiliate any colleagues who presented or worked on that theory. For him, the understating of anatomy played a big part in his findings, and it was what had allowed him to distinguish the bones from different specimens, defending that the “components of an animal all fit together and are optimally designed for its particular way of life” and, if any of these parts were to be altered, the “functional integrity of the whole would be destroyed” (Kolbert, 2014).

Jean-Baptiste Lamarck, a prominent proponent of evolution back in Cuvier’s day, believed that there was a force that pushed organisms to become increasingly complex, animals and plants would cope with changes to their environment by adjusting to their habitats and, in turn, these new habitats would produce physical modifications that were passed down to their offspring. With that said, he was

⁵ Or *transformisme* as it was known in Paris at the time.

opposed to Cuvier's idea of extinction, as he could not imagine a process capable of wiping out an organism entirely – he claimed that these species were simply transformed to better fit that same environment.

In one of his lectures, Cuvier proposed that the mastodon, the mammoth, and the megatherium had been wiped out “by some kind of catastrophe”, but as his collection of extinct species grew, he decided that there had been multiple cataclysms that disturbed life on Earth – his reasoning being that since animals were functional beings, suited to their surroundings, there was no reason to believe that the ordinary course of events would lead them to die out. Therefore, the changes that had caused massive extinctions must have been of a much greater magnitude, so much so that the animals were unable to cope with those changes. Some of Cuvier's claims have turned out to be accurate and lead us to the knowledge that we have now about extinction. (Kolbert, 2014, pp. 26 - 45)

Also, important to note is another piece of valuable knowledge, “Darwin's theory about how species originated double as a theory of how they vanished.”

Extinction and evolution could be considered two sides of the same coin, the appearance of new forms of life and the disappearance of old ones were bound together. What drove both of these occurrences was the same: the struggle for existence, which rewarded the fit and eliminated the less so. (Kolbert, 2014, p. 52)

Now, we know that extinction can occur in two ways, either gradually – as a component of evolution – or suddenly – because of some cataclysmic event.

As mentioned in *The Sixth Extinction*, background extinction is known as the extinction that takes place only very rarely, more rarely than speciation. The rate of this extinction varies from each group of organisms, and it is often expressed in terms of extinctions per million species-years. Mass extinctions are different in a sense that there is a crash and the disappearance rates spike, this typically happens in times of panic, and whole groups of organisms can disappear or pass on to a secondary role. (Kolbert, 2014, pp. 19 - 20)

Biodiversity

A system that is biologically varied is endowed with the antibodies to counter dangerous organisms and restore its own equilibrium. A system based on a limited number of varieties, on the other hand, is very fragile.

(Slow Food, 2018, p. 6)

When talking about extinction, we also need to talk about biodiversity. As explained by the *Slow Food Foundation*, biodiversity as a concept was used for the first time in Washington in 1986 by the entomologist Edward O. Wilson and, at its essence “signify nature, life itself, and the diversity of life on many levels” from the most basic and microscopic, like bacteria and genes, to animal and plant species, up to the most complex levels – the ecosystems. It is also our insurance for the future, to allow the species to adapt to climatic changes, attacks by parasites and diseases or other unexpected events. (Slow Food, 2018, p. 6)

This thought is also shared by Dan Saladino, in the sense that a global food system that depends only on an exceedingly small number of variety of species is at greater risks of dying from diseases, pests and climate extreme. And when comparing the crops of *Kavilca* wheat to these more modern varieties, and only creating identical fields of the latter, we abandon thousands of highly adapted and resilient varieties and, often, the valuable traits of those more adaptable varieties will be lost forever. (Saladino, 2021, pp. 19 - 20)

But why is biodiversity so important? What will happen to our food if biodiversity disappears? According to the FAO, many domesticated plants and animals breeds selected, together with wild flora and fauna, will disappear. (FAO, 2019) In the same sense, in only “one century over 250.000 varieties of plants have become extinct, and, according to Wilson’s estimates, they will continue to vanish at the rate of three species every hour – or 27.000 a year.” (Wilson E. O., 1992)

In 2012, the University of Exeter declared that the planet was undergoing its sixth mass extinction, yet the cause was the biggest difference between this extinction and the one in the past. Humans are, in fact, the ones responsible this time, with the demolish of rainforests, accumulated plastic in the oceans and the vast areas dedicated to monocultures and water and land pollution. (Slow Food, 2018, p. 7)

And, even though it can make people's live easier, mechanization is a big enemy of diversity, and, by nature, industrial agriculture needs uniformity and high productivity so, since the fifties, agricultural production has gradually depended more on smaller numbers of species and varieties, selecting only the ones that respond to the needs of the global market. These crops do not have any kind of relation with the territories they grow in and were bred to be produced in many environments, have a good resistance when handled and transported and have a uniform taste. (Slow Food, 2018, pp. 7 - 8)

The Impact

The impact of culinary extinction may be greater than we can imagine, but we have already seen cases of this. A known example was the Irish Potato Famine that caused the death or emigrations to the United States of a million and a half people, when in 1845 a fungus attacked the potato crop, destroying entire harvests for many years – this was the result of only a single variety of potato being cultivated in Ireland, which left the crop vulnerable to viruses and fungal blights. The subsequent varieties of potatoes grown in the country were more resistant to this fungus thanks to the farmers in the Andes that had grown a vast diversity of thousands of varieties of potatoes. (Slow Food, 2018, p. 6)

As also mentioned in *Delicious: The Evolution of Flavor and How It Made Us Human*, many scientific papers have been written about the role of the human in the extinction of big mammals everywhere in the world, but the consensus appears to be that the megafauna went extinct due to overhunting and/or climate changes. And, as much as it may seem contradictory, humans continue to hunt species into rarity and then, once they are rare, they hunt them even more – because their rarity makes these species even more valuable and more special. (Sanchez & Dunn, 2021, pp. 89 - 90)

More Than Just Food

If we lose our cuisine, we lose part of ourselves.

(Newman, 2019, p. 12)

The endangered foods talked about in the references used during this research represent much more than just sustenance for the human being. They represent history, identity, pleasure, culture, geography, genetics, science, creativity, and craft, and they define our future. (Saladino, 2021, p. 24)

The extinction of one food product represents so much more than just one less ingredient in our tables, it is a lot more than just a loss of source of calories, it represents a loss of recipes, preparations, and harvest techniques and a forever vanish of economic niches. (Newman, 2019, p. 17)

There is not only nutritional and genetic loss taking place, but also a cultural one. Over the course of human evolution, we have discovered a multitude of ways of cooking, crafting, baking, fermenting, smoking, drying, and distilling our foods and drinks and, over time, the number of people with the knowledge of our world's traditional food skills and most of our world's ancient knowledge is decreasing rapidly. These traditions and knowledge are an essential part of our heritage, each one of the endangered foods in the world is the product of invention, imagination, and wisdom of generations of unknown cooks and farmers – and we are losing all of that. (Saladino, 2021, p. 22)

Our cuisine is a way to communicate with others, a way to pass on what we have learned to future generations and to other groups of people – this way, we can exchange important messages about the food we eat. Each individual cuisine is a unique way point of view, which is influenced by its time and place and, if that knowledge is lost, those unique points of view will be lost too. (Newman, 2019, p. 10)

From Sea to Land, From Farm to Table

Many aspects of our lives are becoming more homogeneous. (...) In a short space of time it has become possible for us to eat the same food whenever we are, creating an edible form of uniformity. (...) Whether you are in London, Los Angeles, or Lima, you can eat sushi, curry, or McDonald's; bite into an avocado, banana, or mango; sip a Coke, a Budweiser, or a branded bottle of water – and all in a single day. What we are being offered appears at first to be diverse, until you realize it is the same kind of 'diversity' that is spreading around the globe in identical fashion; what the world buys and eats is becoming more and more the same.

(Saladino, 2021, p. 15)

We have already lost a plethora of species, either being animals or plants, to extinction and this list is bound to increase if we keep on having the same actions in our food systems.

As Lenore Newman refers to “the greatest culinary extinction of all time”, the passenger pigeon was eaten to extinction, even though it was one of the most plentiful birds on Earth – in the numbers of billions – two major causes being the “commercial exploitation of pigeon meat on a massive scale and loss of habitat” and the “large flocks and communal breeding” that made “the species highly vulnerable to hunting.” (Jordan, 2014) The auroch, known as the “prototype” of the cow – as Newman calls it – also disappeared in Poland in the late 17th century. (Crawley, 2019)

Nowadays there is a plethora of scientific resources about threatened species, such as the *International Union for Conservation of Nature's Red List of Threatened Species*, established in 1964 and being the “world's most

comprehensive information source on the global extinction risk status of animal, fungus and plant species”, while also providing “information about range, population size, habitat and ecology, use and/or trade, threats, and conservation actions that will help inform necessary conservation decisions”. (IUCN, 2021)

The impact humans have on planet Earth is undeniable, and when the actual numbers are presented, we can see the seriousness of the problem. The homogenization of crops that have been chosen specifically to carry the qualities we want is a big problem and, with the breeding and crossbreeding of these varieties only, we inevitably lose other varieties with distinct qualities.

The numbers given by Groundwork are astonishing, and it may be hard to believe that this is all happening right before our eyes. Since 1900, 75% of our global plant diversity has disappeared; 86% of the apple varieties that were once grown in America have disappeared and, 90% of our milk, yogurt and ice cream come from just one breed of dairy cow.

And, even though there are more 30.000 edible plants and thirty animals domesticated for our use in the food industry, 75% of our food comes only from twelve distinct types of plants and five animals. And taking the colony collapse disorder that the honeybees are experiencing as an example, we can account for the disappearance of their populations at an unprecedented rate and, we would not only lose honeys and their derivatives, but it would threaten the plants honeybees pollinate⁶.

In the U.S. alone, bee pollination contributes an astonishing 15\$ millions of influx in agricultural production and, losing honeybees as a species, would not only be devastating in terms of economy, but also in terms of culture. (Groundwork, n.d.)

⁶ A few examples being apples, cranberries, broccoli, almonds, blueberries, and cherries.

The Course of Action

It is a conversation between Newman and her friend that ends up taking us to some conclusions around the issues about culinary extinction and later, to our project.

Newman is asked if she thinks that we will lose more ingredients, even with all our knowledge and technology. Even though we are damaging the environment, we should be aware of it – shouldn't we? The author responds that she is worried that the number of culinary extinctions is going to rise, as we still are overharvesting and habitat loss and climate change are still a big problem in our ecosystems, the global demand is rising rapidly. The friend adds that during the research she found people working on the resurrection of necro fauna, people working on cellular agriculture and others that are working to bring back old varieties.

The concept from Zen Buddhism, wabi-sabi is then mentioned. It is centered on the acceptance of transience and imperfection, and the appreciation for the natural world. "Nothing lasts, nothing is finished, and nothing is perfect." That leads us into a possible reflection, that we should mourn and accept what we have lost and do the best we can to protect what is left – dedicate time to protecting the endangered species, rather than somehow try to resurrect or bring back already extinct species. (Newman, 2019, p. 278)

The decline in diversity of our food is entirely a human-made process, especially in the decades that followed the Second World War when, to attempt to save millions from starvation, scientist found ways to produce plants that were designed to grow quickly and produce a lot more and, so, diversity was sacrificed. (Saladino, 2021, p. 19)

Each of the species that we have already lost is an opportunity to teach us an important lesson about our global food system, it show us the ecological vulnerabilities threatening our planet's biodiversity today, and, as we can come to the conclusion that our ecosystems are not in balance and, the loss of other

food species is certain to grow if we do not take any kind of action. (Newman, 2019, p. 19)

So, the final question really is, what can we do to stop this massive extinction we see happening right before our eyes? How can we save the foods that are so especially important for the world? What is the plan?

Firstly we, as individuals, need to understand what is endangering our food and where and how we are part of the problem. We need to diversify our plates and take on a more plant-based approach to our diets, we should also be embracing the seasonality of foods, helping to build a more diverse agricultural sector, and nurture diversity, not only because we need it, but also because we have celebrated it during the creation of cuisines and the evolution of cultures.

We need to consider what the past can teach us, because our current food system is contributing to the destruction of the planet, with one million species being threatened with extinction, mass deforestation just to plant immense monocultures, and the destruction of biodiversity. "Our food is both the cause and the victim of all of this harm," but they are essential to us, and these foods should be part of the solution. (Saladino, 2021, p. 22)

Chefs and cooks also have a crucial role in this matter, they have an opportunity to educate the consumer directly, bring back this endangered food into their cooking rotation, into their menus, into their restaurants. Encourage the consumer to try "new" foods and incorporate them into their diets.

There are also large initiatives committed to help those endangered foods and we should support them and learn more about them. The Svalbard Global Seed Banks for example, is committed to preserving our crops, it is securely located

under an ice shelf between Norway and the North Pole and it stores, catalogs, and preserves plant seeds from around the world.⁷

On a smaller scale, organizations such as the Slow Food Foundation – and its Ark of Taste – are working to protect local foods and demonstrate how important food diversity is to our culture, ecosystem, and future. (Groundwork, n.d.)

⁷ <https://www.regjeringen.no/en/topics/food-fisheries-and-agriculture/svalbard-global-seed-vault/id462220/>

PROJECT

Introduction to Concept and Objectives

To better understand how this project fits all the research shown prior, we need to introduce the institution that brought out the challenge.

The FORK Organization⁸ is a global non-profit organization of people interested in food and design that aims to re-think and (re)frame the food systems and human diet; it had put forward the challenge to develop a food product or service during the 1st semester, and a food experience during the 2nd semester of the 2021/2022. The transversal project that was developed within the Master in Food Design (ESHTE) program was divided into six different phases to be developed further ahead – each one with different objectives and methods to achieve the final product – and, throughout the course, it was pitched with the founders of the FORK Organization, while also being monitored by the professors of the different subjects of the master's, to receive from all feedback on the project's development.

Thus, as mentioned previously, the project *re.lem.brar* started to be developed during the academic year of 2021/2022 in the first year of the Food Design master's degree program, within the scope of the FORK Organization Challenge on Experiencing and Envisioning Food: Designing for Change, focusing on the proposed theme of the Next Generation of Consumers.

Taking the research shown ahead around the issue of culinary extinction, we question ourselves straight away on how we can try to save these ingredients that are on the verge of extinction and, consequently, how can we try to save our gastronomic traditions, while keeping this knowledge, in order to pass it on the generations to come.

To have a better grasp and because it is more accessible to understand what the situation is around us, we will be looking on a smaller scale, in this case, we will

⁸ <https://theforkorganization.com/>

work with Portugal and its ingredients and traditions and, although this is a problem affecting our global food system, it is simple to try and reposition this reality to other places in the world, and create the final end product, depending on the reality of the country chosen.

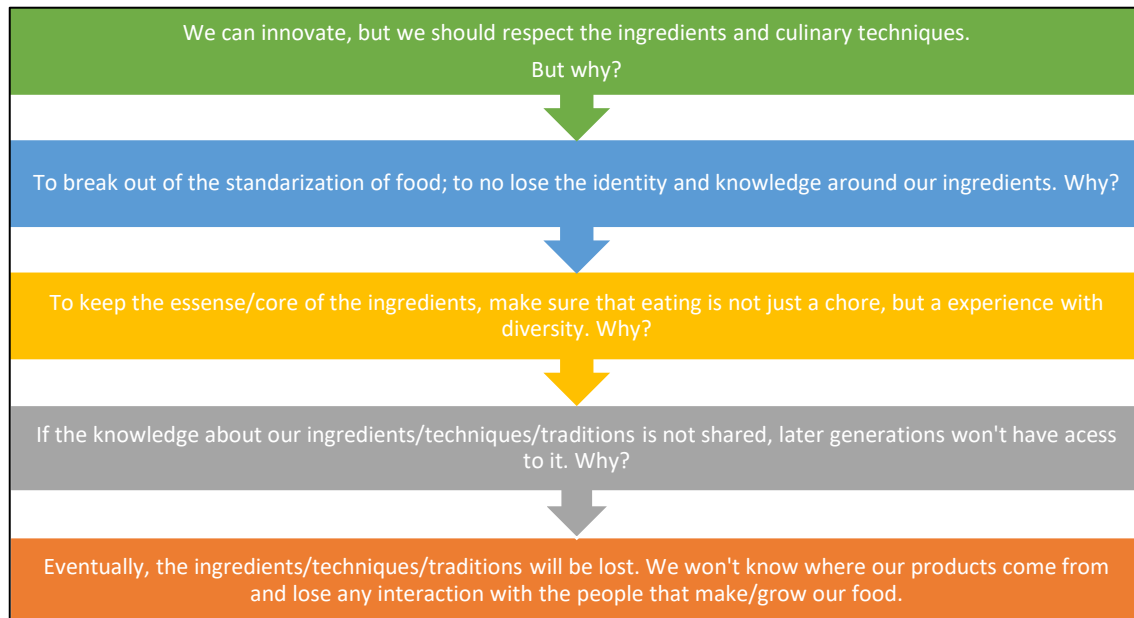


Figure 1 Brainstorming around culinary extinction. (Own authorship)

The previous diagram (figure 1) was the first brainstorming around the issue we previously raised about culinary extinction, as a way to understand what our course of action could be in terms of developing a food product to help fight this same issue.

With that in mind, our main question for the project is:

How can we bring forgotten Portuguese ingredients back to the table?

This also takes us to a few more questions to better understand the problem, as follows:

- How may we help the consumers to be more aware of forgotten Portuguese foods, to avoid loss of food knowledge and create a more sustainable and local diet, when they cook for themselves?
- How may we contribute to have the Portuguese consumer create a relationship with food, to avoid the loss of ancient/forgotten Portuguese ingredients and discover “new ingredients” to use on his/her diets?
- How may we help the consumers to bring the forgotten Portuguese foods back to their table and, incorporate them in their diets when cooking and create more ways to incorporate/include them in recipes?

Brainstorming

Throughout the development of the project, it was used a variety of methods to better achieve the idea that we wanted to conceptualize.

Given the theme we had already chosen – culinary extinction, in the context of Portugal – we started to collect, organize, and classify the information we had obtained during the research process, according to this chosen theme, in order to structure the problem and find possible opportunities for intervention and application to create a product in a future food scenario.

We started by creating a territory map (figure 2) to have a better grasp of the follow-up questions to our main issue/question, which is: how can we bring forgotten Portuguese foods back to the table?

Then, we tried to understand for whom this is a problem, here we tried to narrow it down to better understand our target. In terms of consumers, we have both individuals – being the “average” consumer with a raised awareness of some of our food system problems – and industries – these being restaurants and, specially, national chefs that could help raise awareness about these forgotten ingredients and bring them to the spotlight. For institutions, we believe that a big part that could be helpful to us are public institutions such as schools, archives, research centers, among others. Finally, for the producers, we would be solely collaborating with local ones, such as local farmers, fishermen, and others.

Next, we tried to be aware of the social and cultural factors that help to shape this problem, such as the loss of food knowledge and word of mouth knowledge, the globalization of food, with the increase of consumption of fast-food and consequent detachment from nature and extinction of some food species.

And finally, evidence such as the standardization of food, the decline of diversity in our food and diet, and the loss of food traditions and ancient ingredients show us that this is a significant problem that we need to work on.

With that said, this project connects to the proposed theme of Next Generation of Consumers and the consumer will be our focus.

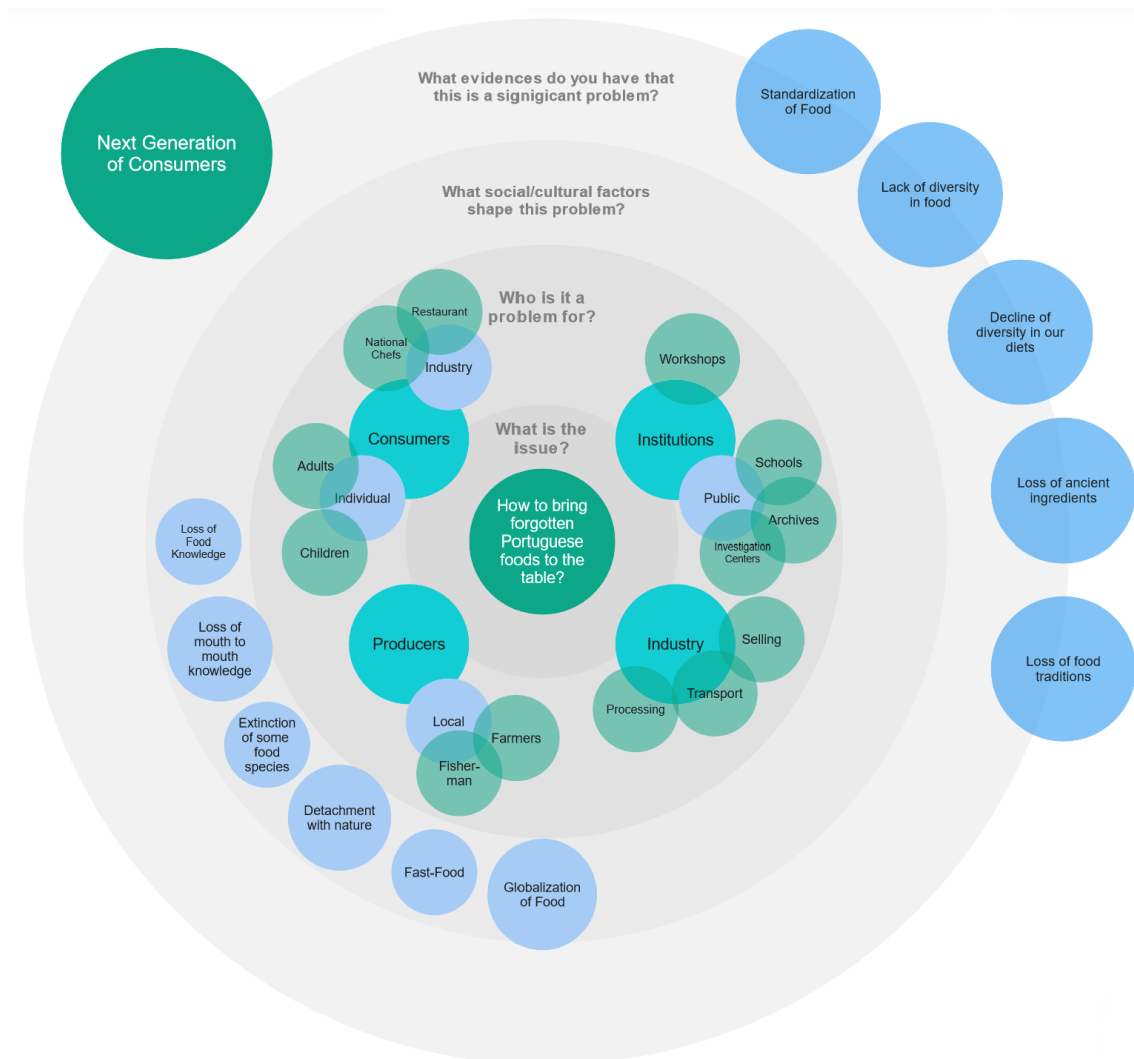


Figure 2 Territory Map (Own authorship)

On a next phase we tried to better define both the problems and the concepts that would lead to the final concept, trying to idealize what would be the final product.

During the development, we did a brainwriting exercise considering the 6-3-5 method. For this we had the participation of our former colleagues during the

master's degree and one of our former coordinators and teacher, Ricardo Bonacho (six people in total, including ourselves).

As shown on the table bellow (table 1), we firstly wrote down our three main problems/issues, then one of the participants wrote down three initial ideas/solutions on their own, finally, after 5 minutes, the table rotated to another one of the participants and the process was repeated. This brainwriting exercise ended up helping to generate different ideas and encourage creative problem-solving while also developing solutions to the main issues.

After the exercise, the idea for the final solution started with the idea of creating a sensory and interactive cookbook about the forgotten Portuguese ingredients.

In a better illustration of the idea for the project, and taking some of the solutions shared into consideration, the final product would be a cookbook that would interact with all the human senses – not only the vision. In this way, we could create a sensorial experience for the user and, thus, create a way for them to receive the knowledge about these ingredients, while also having the possibility to create new memories regarding them.

From there on, we already established that we would work exclusively with national and local producers, farmers, chefs, and other professionals that in some ways are familiar and comfortable with the forgotten products that we would later work with on the cookbook – this way, we could give some notoriety, not only to these, but also to the people that keep them alive in some way.

This close relation with these professionals would also be essential to better understand the ingredients – their characteristics, what it takes to get them, their flavors, how it is possible to incorporate them in our lives and the reason why these are falling into disuse and slowly disappearing from our plates.

Table 1 Brainwriting exercise with the 6-3-5 method (Own authorship)

Save the forgotten Portuguese foods – Ancient foods are getting increasingly forgotten	Bring the forgotten Portuguese foods back to our table and diets – Old ingredients are disappearing from our diets	Lack of relationship between the producer (and its produce) and the consumer (lack of food knowledge)
SOLUTIONS		
> Make a cookbook	> Make a book with knowledge and seeds from the products	Do workshops both on the field and in the kitchen
Create brotherhoods for forgotten products	Design food experiences around these products	Create a system for sales of shared crops between producers and consumers
Create a fair dedicated to forgotten foods	Create a Show, where you can display the different dishes and how to make them. Make a fieldtrip to these forgotten food crops	> Do a cooking workshop in a local produce fair with the products from them so you can show how to transform and work the ingredients
Develop cooking classes focused on forgotten food	> Get a food truck that tours around different (farmers) markets which serve food with forgotten vegetables and at the same time sells those	Use (social) media to tell the story of local producers to the consumer
> Create a journey (by boat) where one (re)makes the Portuguese food discovery. For example: starting in Almada, arriving at Belem, and doing some experience there (Peddy-paper) to discover a product	> Create a delivery app that brings to the consumer monthly or weekly a forgotten food and recipes to work with.	Retreats with producers and consumers where they do exercises of knowing each other and what or how the products are made
> Sensorial Cookbook (find a way to create a book with sensorial experiences with all the senses)	> Recreate Memories inside the book with forgotten ingredients	> With the book recreate a visit to a local producer for people to experience the ingredients in their raw nature

Later we created a table (table 2) with a bundle of ideas to help define both the concept and the problems, that were explained above.

Table 2 Bundle Ideas (Own authorship)

What? Use a book as the medium to share knowledge. Interactive book that recreates memories with the forgotten ingredients, while working the human senses.	Why? To create an experience so it is easier to get to know these products, and create an interaction between the reader and the products (in this case, the forgotten ingredients)	How? Have the book being a sensory experience, that people can, not only read, but interact with Have seeds in the book, that way, the consumer can even plant their own forgotten ingredients, while working with the senses as well
Where? In an event, taking place at a local producer, where people can experience the ingredients in their raw nature presented in the book (even with a workshop?)	When? After all the research, interviews with historians, chefs, nutritionists, etc., recipe creations	Who? The consumer/reader who will experience and interact with the book

To help organize the information attained prior, we used different mind maps in order to show the relationship between the various main points.

While trying to answer the question of how we can bring forgotten Portuguese ingredients to the table, three different keywords come to the discussion. (figure 3)

Since we are working with forgotten ingredients, clearly food is one of the main points to take into consideration for this project. When talking about food we need to also take into consideration the whole experience around food, the techniques we use to prepare the ingredients we have, all the knowledge behind it, not only the ingredients itself, but also the techniques and, finally the history of food in the world.

Another main point is culture. We need to understand that food is so much more, and there is a whole culture behind it, all the knowledge we inherit, the traditions we have that are related to food and the impact that it has on our identity as authors as *Massimo Montanari* explain on their publications *Food is Culture*. (Montanari, 2006)

The last point is the people. We need to create empathy with the consumers and understand their needs, understand that we live in a community and food impacts this community and that food is part of our memories, throughout our entire lives.

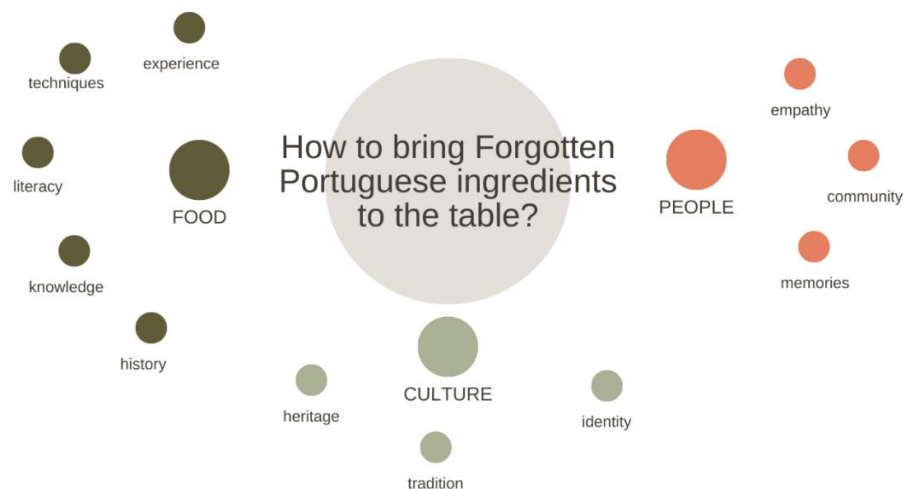


Figure 3 Mind Map - How to bring forgotten Portuguese ingredients to the table? (Own authorship)

After that, we also needed to understand what we should keep in mind to develop a sensory and interactive cookbook (figure 4).

For the cookbook itself, we would need to organize what the content would be and figure out a way to make it interactive – with this, we would need to find the best ways to present it (either physically or digitally) and understand how we

could incorporate the different senses for the user to experience and interact with it.

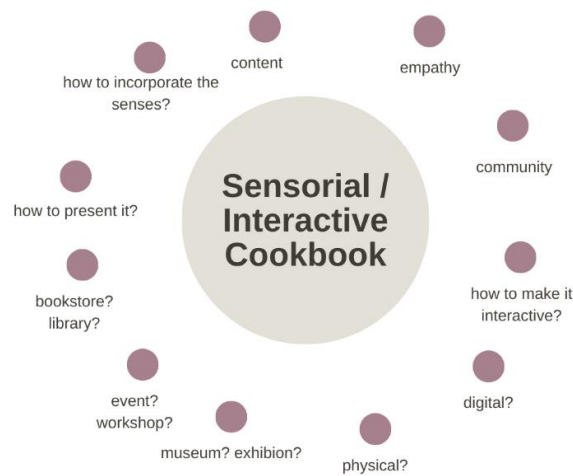


Figure 5 Mind Map - Sensory/Interactive Cookbook (Own authorship)

On a later stage, we started to define stricter guidelines for the project that would end up being the final food product. Therefore, we used different exercises to reinforce the definite concept – the value proposition canvas and the systematic design practice wheel.

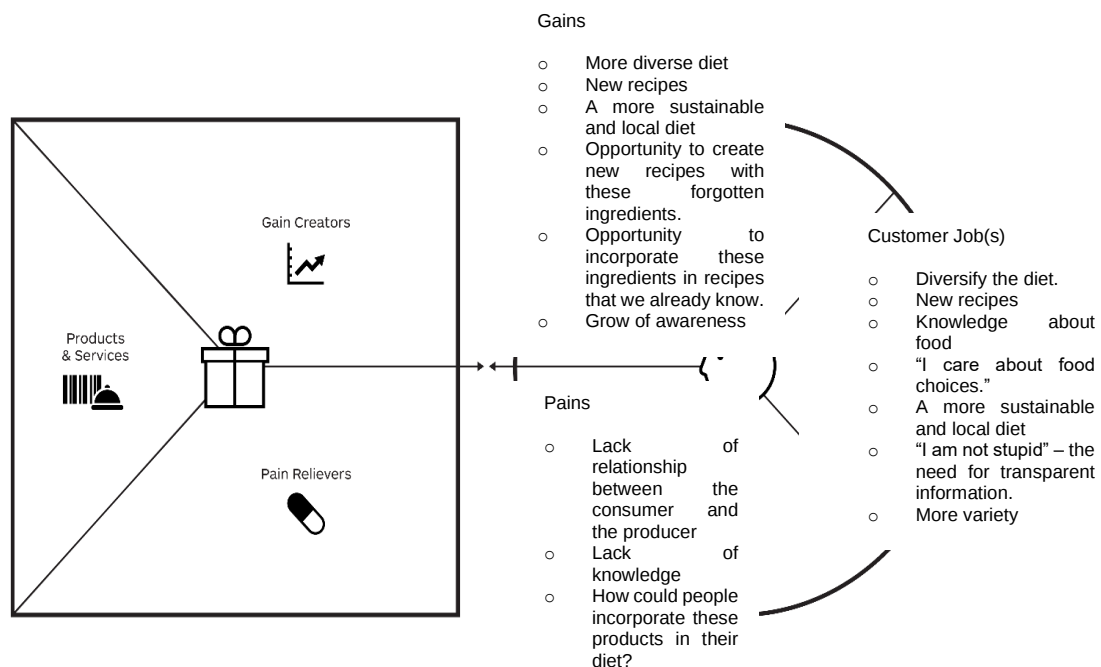


Figure 4 Value Proposition Canvas (Own authorship)

Firstly, the Value Proposition Canvas (figure 5) was used to have a better understanding of the customers' problems and find a way to solve them.

Here we can have a better idea of the issues and problems the user is currently facing ("Pains" section on figure 5), learn about what the customer's job is, in order to tackle the problem ("Customer Job(s)" section on figure 5), and finally realize what gains the customer would have from this food product ("Gains" section on figure 5)

Then, we used the Systematic Design Practice Wheel (figure 6) to guide us through the five core domains – principles, place, people, process, and practice – in order to cover the main considerations that should be taken into account.

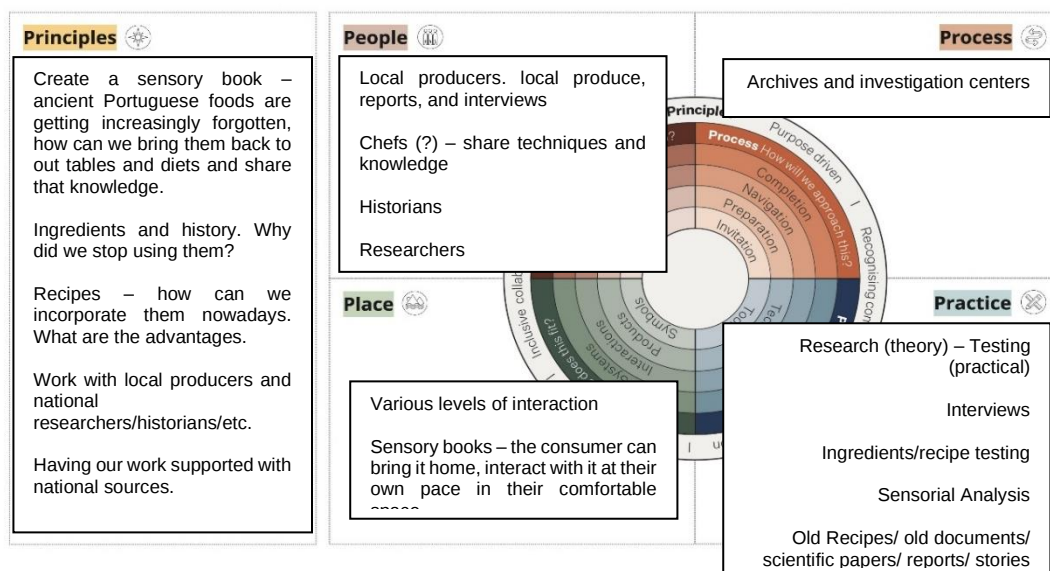


Figure 6 Systematic Design Practice Wheel (Own authorship)

Firstly, we needed to pin down the principles of our food product and its purpose for the audience – to understand what we would create and the best ways to achieve the concept we are working on. ("Principles" section on figure 6)

After, we have to figure out where the product fits, considering the interaction that the consumer will have with the product. ("Place" section on figure 6)

Then, recognize who needs to be involved in the project to make it happen, pinpoint who would be an asset for us and what kind of team we would need to

gather the information and present it in a proper way. (“People” section on figure 6)

Next, we take into consideration the best way to approach the project, from the research, to the preparations and its completion. (“Process” section on figure 6)

Finally, we would have to find out what we would need to use, considering the principles that we have already established – from the methods, techniques and tools that would be needed. (“Practice” section on figure 6)

Inspiration – Mood boards, Storyboards, Look & Feel

Other than the literature review and research done around the theme of culinary extinction during the development of the project, there was also research made in terms of the look and feel we wanted to bring about.

As mentioned before, the final food product would be a publication dedicated to the forgotten ingredients of Portugal, focusing on a more sensory and interactive side of the experience – the end user would not only be reading a book, but would have an involvement with the product itself, while using all the five senses – taste, smell, vision, hearing, and touch.

It is important to mention that, throughout this research, some of the ideas that we came across would have a big impact on what would be the final product and, consequently, it ended up shifting a bit from what the original idea mentioned before in the *Brainstorming* phase.

With that said, we first tried to study other resources that had already been published, trying to find other projects with similar ideals to ours.

On a first stage of this research, we tried to find publications – books, magazines, etc. – that were different in some way, either products that were more interactive than the average book or magazine, or products that focused deeply on a single subject.

We ended up encountering different projects – some on *Behance* – that were conceptualizations of ideas which were already in the back of our mind, with concepts that interacted with the user – concerning either the touch or the hearing. (figures 8 and 9)

One of the other projects that we encountered was the *Magazine F*, a magazine that explores a specific ingredient or product in each issue, and analyzes how that ingredient is grown or produced, prepared, and shared in different cultures globally. (figure 10)



Figure 9 All About Cheese (Jeon, 2021)



Figure 8 Hvísl - Whispers of Iceland (Lanthiez & Curé, 2014)

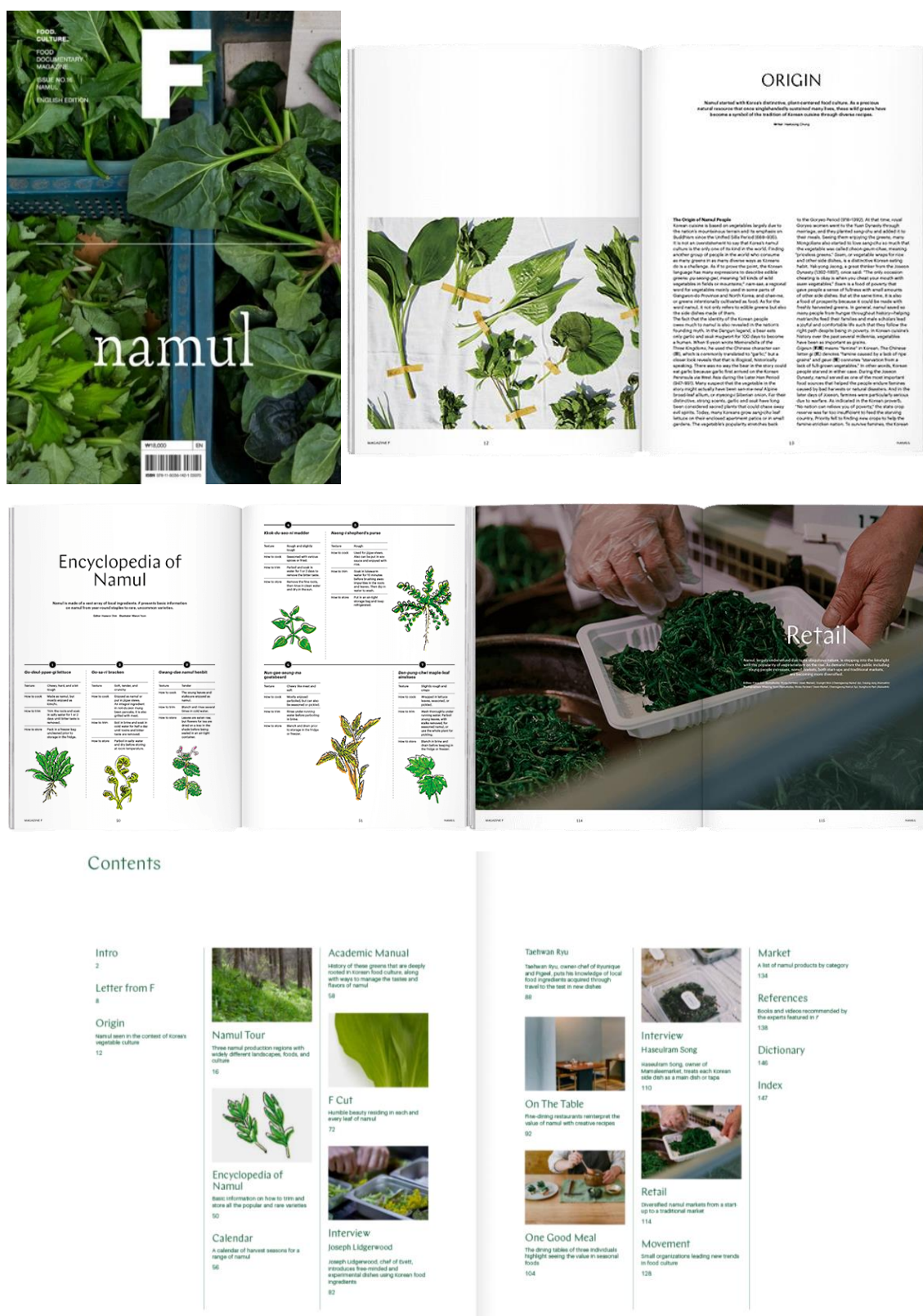


Figure 10 NAMUL (English version) – magazine (NAMUL (English version) - magazineb, 2021)

The idea of having different issues, with each one of them focusing on a single ingredient/byproduct intrigued us, because it would be a more intimate approach between the user and that said product; it would also give us the possibility to personalize the issue in a way that would make more sense to it. Thus, the idea of creating a selection of different issues came up, creating a collection focused on different forgotten ingredients. (figure 11)



Figure 11 Meaningful Meal Experience Through Simple and Innovative Design by RONG Design (Meaningful Meal Experience Through Simple and Innovative Design by RONG Design - World Brand Design Society, 2020)

Then, we started to explore ways to interact with the different senses within our publication, trying to learn what options would be best for each of the senses.

We wanted to show the user various ways to interact with those said ingredients – either by touching it, experiencing it in different forms, growing it, preparing it, smelling different scents that would relate to it – and incorporate those experiences in the publication itself. (figure 12) Of course, we would still try to interact with the sense of vision, showing the ingredients in a more detailed way or in different forms. (figure 13)

Other methods that we came across during the research included seed papers and scratch and sniff patches. (figures 14 and 16)

With that said, we took inspiration from a few projects, like *The Anatomy of a Recipe* (figure 15), as a way to give the user a way to see in a closer manner the ingredient and save it for themselves.



Figure 12 *The Art of Ingredients / NAMA Sushi* (Creative, Bui, & Nguyen, 2020)



Figure 13 *Taste: The Infographic Book of Food* by Laura Rowe, illustrations by Vicki Turner (Harris, 2015)



Figure 16 Seed Paper by Henry Lopez (Lopez, 2013)



Figure 15 Anatomy of A Recipe by Leonie Anholts (Tzenkova, 2022)



Figure 14 Unexpected by Veri Ann (Ann, 2018)

General Concept

At a later stage of the development of the food product and considering both the literature review and research of the theme, the inspirations, and references the idea of a book had somewhat of a shift.

The concept of the project still remained the same, but a part of the final food product changed. The final food product changed from a sensory and interactive cookbook to a collection of sensory and interactive magazines about the forgotten Portuguese ingredients.

The intention is still for it to be a sensory experience itself which would interact with the different human senses but give each one of these forgotten ingredients or food byproducts their time to shine with their own different issues dedicated to them. This magazine would end up having a seasonal release – coming out according to the peak season of the product worked on that specific issue – taking advantage of the seasonality of each one of these.

Going into more detail, and as said before, one of our main goals is to create an experience that interacts with the human senses – for this, we will incorporate not only pictures and words, but also textures, sounds, sights, and smells to tell a story, with the intend to (re)create memories between the user and these ingredients.

Some of our other goals are to explore these forgotten ingredients, get to know their history, characteristics, and properties, figure out the reason they stopped being used and how could we incorporate them in our diets these days with the help of recipes – introducing a mix of more traditional Portuguese recipes and some more innovative and trendy ones. We intend to also reinforce the urgency to act on this issue with various reports and interviews with either producers, researchers or even chefs that are familiar with these ingredients.

Below we present a design briefing to help us outline the core details and expectations related to this food design project as a brand.

About the Project

Background

This project came to life in the context of the FORK Organizations Challenge – Experiencing and Envisioning Food: Designing for Change. Based on the proposed themes, we were asked to choose a topic to develop a food product or service (in the first semester) and a food experience (in the second semester) – in this case, the proposed theme that will be worked is the Next Generations of Consumers.

The Problem

Ancient Portuguese ingredients are disappearing from our memories and our table, they are increasingly being forgotten. We are losing traditions and a part of our culture because of that, and the younger generations will quickly lose the little knowledge there is nowadays.

Traditions are getting lost, and ingredients will eventually go extinct if the knowledge is not shared and passed on to the younger generations.

The Audience

The target audience would be the Portuguese consumer, mostly millennials and younger generations, because these are willing to spend more money on food, they are harder to trick (by companies, marketing, etc.), and there is also a greater interest in knowing where food comes from and in cooking itself.

Proposed solution

The main solution is to re-introduce the consumer to this forgotten ingredient. There could be more than one way to do it, but in this case, the proposed solutions would be a sensory and interactive magazine, making it an experience and a way to create new memories about these foods, this could be either a physical or digital cookbook.

List of possible ingredients to work on:

- *Acelga* (*Beta vulgaris* var. Cicla).
- *Barbela* wheat.
- *Beldroegas* (*Portulaca oleracea*).
- *Camarinha* (*Corema album*).
- *Catacuzes* – might also be known as *alaças*, *erva azeda* or *espinafre roxo* (*Rumex bucephalophorus*).
- *Cherovia/pastinaca* (*Pastinaca sativa*).
- *Chicória* (*Cichorium intybus*).
- *Cidrão* (*Citrus medica*).
- *Encore* tangerine (an hybrid obtained from the crossing of three different varieties of tangerine) (M.J. & A.M.M, 1999).
- *Escorcioneira* (*Scorzonera hispanica*).
- *Meruges* (*Montia fontana*).
- *Muxama*⁹.
- *Pau roxo* (*Peltogyne maranhensis*).
- *Tengarrinhas/Carrasquinhas* (*Scolymus hispanicus*).
- *Tupinambo* – might also be known as *alcachofra-girassol* or *girassol-batateiro* (*Helianthus tuberosus*).
- *Umbigo-de-Vénus* (*Umbilicus rupestris*).

Goals

The main goal of this project is to share the most knowledge possible about the afore mentioned forgotten Portuguese ingredients, find a way to make the consumer comfortable with them and start using those on his/her diet. Keep the

⁹ Muxama is a traditional Portuguese and Spanish delicacy, specifically from the Algarve region of Portugal. It is made from the loin of a specific type of tuna known as “*Atum Bonito*” (*Thunnus alalunga*), which is also called “Albacore Tuna”. To make *Muxama*, the tuna loin is first salt-cured and then air-dried. This process can take several weeks to achieve the desired texture and flavor. *Muxama* has a deep red or pinkish color and a firm, slightly chewy texture. It is often served in very thin slices, similar to cured ham or prosciutto. The flavor is rich and savory, with a hint of sea, and it's typically enjoyed as a delicacy or appetizer. It's often served with olive oil and herbs, and it's a popular item in the culinary traditions of the *Algarve* and southern Spain.

tradition going on for generations, while keeping the ingredients alive in our culture.

Measuring success

The greatest success would be the rediscovery of these forgotten ingredients by the average consumer and their use in his/her day-to-day life.

Creative Outputs Required

- Cookbook (being either a physical or digital one):
- Ingredients and recipe testing.
- Reports, interviews, etc.

Brand References/ Personality

- Keywords: food, memory, ingredients, tradition, forgotten, culture, heritage, identity.

Lastly, on a final stage of the development of the project and before working on what would be the final prototype, we created a Business Model Canvas (figure 17) to better set the groundwork for the project and describe our product's value

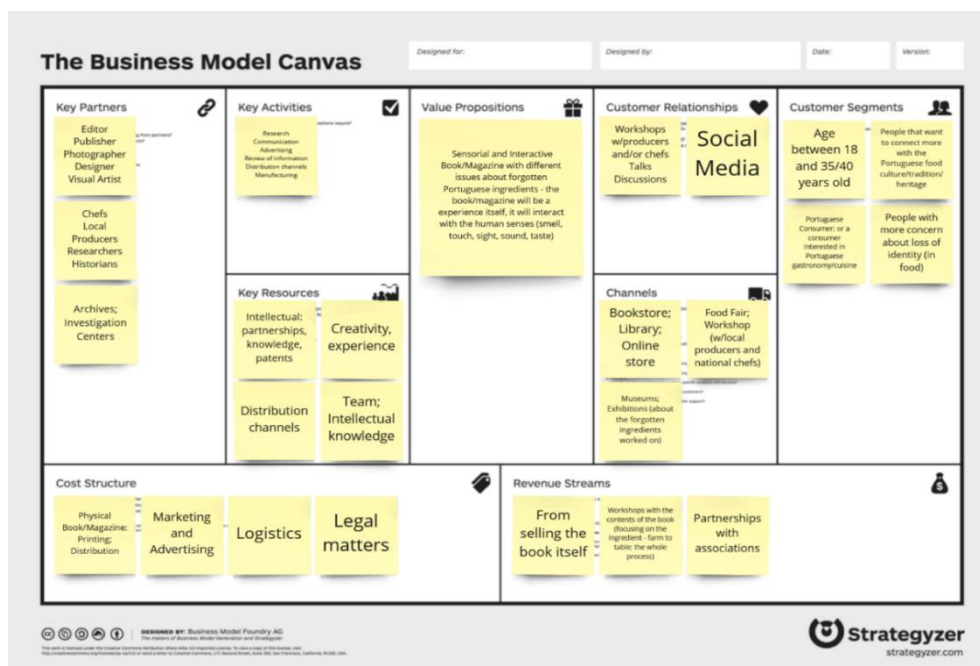


Figure 17 Business Model Canvas (Own authorship)

proposition, infrastructure, customers, and finances – below we will discuss in more detail each one of the main key points.

A) Customer Segments

Our main target is either the average Portuguese consumer or, a consumer who is interested in the Portuguese gastronomy/cuisine, or who wants to connect more with the Portuguese food culture/tradition/heritage, someone between the ages of 18 to 40 (or plus) years old with a bigger concern for the loss of identity when it comes to food and a raised awareness around our global food system.

B) Key Partners

Here we can divide into two distinct types of partners.

For the content of the magazine, recipe testing, interviews, and reports, we would need to work closely with chefs, local producers, and researchers – here we can also include archives and research centers – like the project ReSeed.

For the final product, i.e. the physical magazine, we would need people to help us publish it, so editors, publishers, photographers, designers, visual artists and many more, would be essential to get this project off the ground.

C) Value Proposition

Our concept consists of a sensory and interactive magazine, with different issues – each one of them would be focused on one single forgotten Portuguese ingredient and, as said before, it would respect the seasonality of the said product, so, as long as the ingredients is available during its true peak season, the magazine about it would also be available.

It is also intended for the magazine to be an experience itself, something that the consumer can interact with and use; for that, it will interact with the human senses – smell, touch, sight, sound, and taste.

D) Key Activities

To make this project come true, it would need a lot more research and review of the information, in order to make sure our sources are viable. Other activities such as communication, advertising, our distribution channels, and manufacturing are also essential to make sure everything goes as planned.

E) Channels

It is essential we have working channels of communication and distribution of our product to the consumer.

As it is a magazine in its essence, it is something that could be sold in a bookstore, library or even on our own online store.

On another note, we could also create partnerships with organizations with the same concerns as us and create exhibitions about the forgotten ingredients we would work on, as a way to enhance the experience of the consumer with that specific ingredient.

Finally, food fairs and workshops – with local producers and our Portuguese chefs – would also be a fantastic way to get to people. Having, for example, workshops included in the magazine, where the consumer could have the opportunity to work with these forgotten ingredients alongside the people that make it possible.

F) Revenue Streams

Our main streams of revenue would be from selling the magazine itself, partnerships with other associations and/or organizations and from workshops with the contents of the book, where we would focus on the ingredients, from farm to table.

G) Cost Structure

Our main costs are related to the physical magazine, such as printing, distribution, the organization behind publishing a magazine, legal matters and the marketing and advertising.

H) Key Resources

In terms of intellectual resources, we need partnerships, knowledge, and patents, we also need a team with intellectual knowledge, creativity, and experience. It is also important to highlight the importance of distribution channels for our product.

I) Customer Relationships

Finally, it is essential to create empathy with our consumer, create a storytelling that encourages the consumer to take the next step. So, it is important to have a good social media presence, interact with the consumer in an approachable way.

Workshops with local producers and/or chefs, as well as food talks and discussions, are also a way to create a relationship with the consumer and, as a result, ease such a process of acquiring all this old knowledge that we are losing.

Prototype

As mentioned above, there was a shift from what the first concept was – an interactive and sensory cookbook – to what would be the final prototype of our food product – an interactive and sensory collection of different issues of magazines.

The main key points of our publication remained the same, we wanted a publication that would interact with all the human senses, as a way to connect with the end user.

Going into greater detail, our final food product would be an interactive and sensory box, which included the magazine, along with other items that have the potential to amplify the experience of the user.

With that in mind, we chose a single ingredient and created a prototype around it. So, for the first issue we chose to focus on *barbela* wheat, and we are now presenting in detail how we have worked on it.

Starting with where the magazine itself would be – the packaging in a sense.

We chose to package it in a box where the contents would be the publication itself and some items to complement the latter, so that everything could come together in a single parcel. The idea would also be for the users to be able to collect all the different boxes focusing on the different ingredients we would work on throughout our project and have their own vault of knowledge about these forgotten ingredients.

Again, we would use different techniques to be able to achieve the sensory and interactive features of the magazine. For a better understanding, we will divide each detail into the different human senses – it is important to just note that the senses of taste and smell can sometimes be interconnected.

1) Taste

To evoke a sense of taste we chose to interact with it using additional items – because in the magazine it would be difficult to make something safe for human consumption in that context.

For this, we chose to incorporate *barbela* wheat flour and a sourdough starter made from *barbela* wheat. This way, the user could use both the flour to bake and the starter to leaven their own bread, that they would then eat and taste the different notes in this species of wheat and understand the differences among other more industrialized flours – since the *barbela* flour has typically a different milling process, closer to what the traditional process was, it retains more nutrients and elements of the wheat itself.

2) Smell

As mentioned above, the sourdough starter would also be an item that would enhance the smell sense, considering that these starters have a strong sour odor – as the name suggests.

In the process of baking, the user would also be able to experience the various notes in the smell while it is baking.

To build on more to this sense, we would also add scratch and sniff patches along the magazine – for example, in the chapter regarding the process, we would include smells that make reference to the process itself, in the chapter regarding the wheat, we would include smells that send you to a field full of *barbela* wheat in the comfort of your own home.

3) Vision

In this context, it would be a more straightforward process.

For this sense we chose more visually interesting pictures, close-ups of the ingredient, details of their distinct characteristics and photographs and/or videos

of their processing of production/preparation and techniques used to achieve the final product of the ingredient for the user.

We also choose to use QR codes that would take the user to the different videos mentioned above – using the smartphone as a way to interact with a more traditional type of media.

Most of these media were also accompanied by the different elements used to enhance the other senses – in a way, we tried to create the feeling that we experience while watching a 3D movie, an experience that engages with more than your vision.

4) Hearing

Using the same train of thought we used in the vision sense, we paired this sense with the others to create a more sensory experience.

Here, we also used QR codes to take the user to sounds related to the tradition of the ingredient, the processing and preparation and even talks with producers, farmers, millers, chefs and so on.

Taking a specific example in the 1st issue around the *barbela* wheat, we wanted to share a little about the traditional methods used to mill the wheat, so we shared some of the knowledge we got when talking to *Paulo Fernando Paulino Horta*, a passionate person about the traditions around our wheat, that comes from a generation of millers.

So, we wanted to share the sound of the windmills, as we discovered during the talk previously mention (and as we can understand given the transcriptions on xxii and xxv) their importance to the tradition of milling. Fortunately, when visiting the headquarters of family's business, we were able to tour a old windmill that was no longer in use, but we still got to experience what is the sound of the windmills – when you see a windmill, you can see a small clay object, sometimes

in the shape of a gourd, containing a single hole – the *búzios*¹⁰ - which is placed at the tip of the sails of windmills and which, as they rotate, produces a kind of whistle that allows the miller to calculate the intensity of the wind and the speed acquired by the sails. (Correia, 2010)

Even though is such a small detail, that could go easily unseen, it was the kind of technology that had back then, and it worked perfectly, so we believe it is important to keep that kind of heritage alive in our mind, even though we don't use it anymore, it made a big difference many years ago and it is part of the history of *barbela* wheat.

5) Touch

Last, but not least, our idea in this human sense was to get your hands dirty.

Some of the items we indicated before also interacting with the touch – for the user to make the bread, they will need to use their own hands, they will need to knead the raw dough, mold it and, after baking it, they will be able to feel the crust of the bread and with the bread knife – one of the other items that will be provided for this issue – they will be able to cut the bread and feel its crumb.

In the magazine, some pages will be stuck together, and the user will only be able to rip the pages apart using that knife, to discover more information about the ingredient.

We also wanted to introduce textures in the magazine itself and, for that, we would use seed paper – with the *barbela* wheat seeds – so the user can feel then and, if they desire, they can rip the page and share with acquaintances.

We would also provide a jar with those same seeds, so the user can put them in their hands and move them around – for wheat, it wouldn't be a easy process to plant it, but for other ingredients like herbs, fruits or vegetables, the user could

¹⁰ A conch.

easily plant it in their own garden and, of course, the magazine would come with direction on how to do it.

Related to the items that were mention above, all of them are a way for the user to interact with the ingredient and make it a more sensory and interactive experience for them – to also boost up the items like the bread knife, the sourdough and the flour, we would include recipes to highlight the ingredient, so that the user can experience it at their own time and all their senses.

Below (figures 18 and 19) we show a prototype of how the sensory box for *re.lem.brar* would look like – containing the magazine, the *barbela* seeds, the *barbela* wheat flour, a sourdough started made with *barbela* flour and a bread knife.

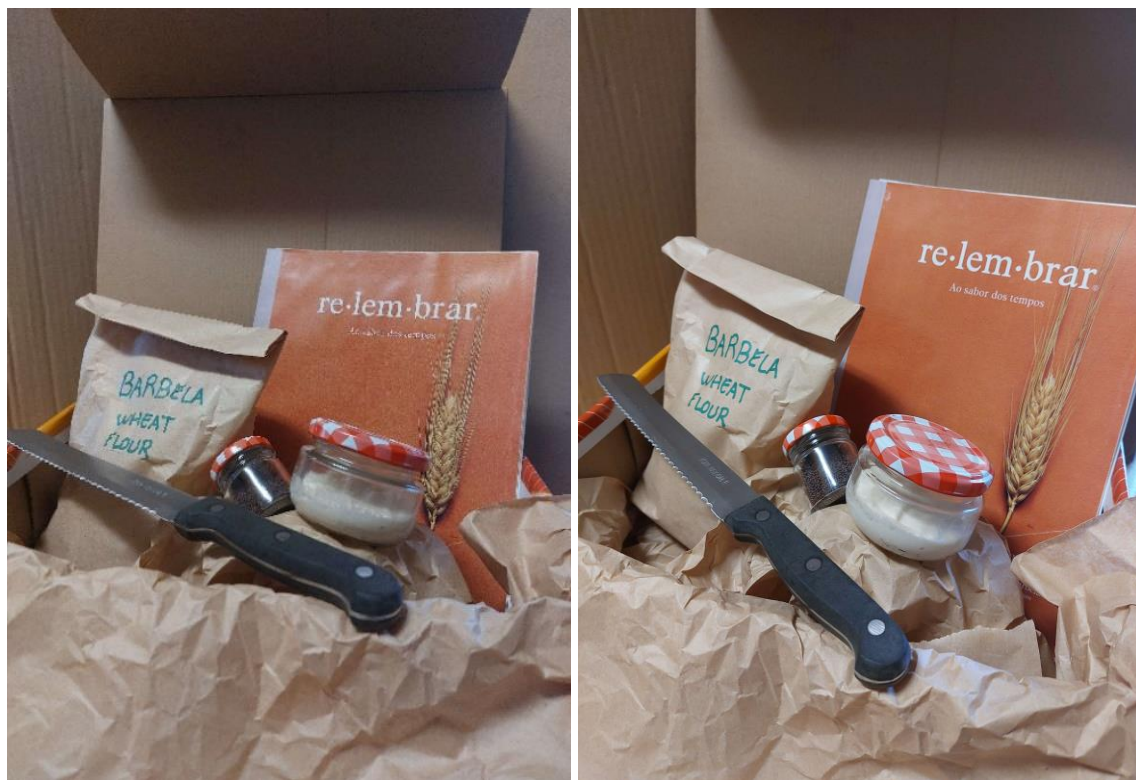


Figure 18 Prototype of sensory box with its contents for the issue about barbela wheat (Own authorship)



Figure 19 Details of the prototype of sensory box with its contents for the issue about barbela wheat (Own authorship)

In terms of content, we decided on some main ideas that could be developed more in dept, depending on the ingredient worked on each issue, but the main table of contents would be the below:

- 1) Intro.
- 2) Letter from the Authors.
- 3) Culinary Extinction.
- 4) Encyclopedia of (insert ingredient)
 - a. History and Origins – understand from where it originated and their history in Portugal.
 - b. Characteristics – what makes that ingredient different, get to know it and its importance in our food system.
 - c. Production – from sowing, during its growth, from harvesting, to milling and until it reaches the final consumer and the retailers.
 - d. Culture – get to know some customs, traditions or heritage that came from that same ingredient.
- 5) Why did we stop using it?
- 6) Point of view
 - a. Interviews
 - b. Reports and/or talks
 - c. Retailers
- 7) Recipes

8) References

Below we show some of the first versions mockups of the mockups for the magazine in terms of the design of what our physical magazine would look like. (figures 20, 21 and 22)



Figure 20 First version mockup of "From the Editor" section of the magazine (Own authorship)

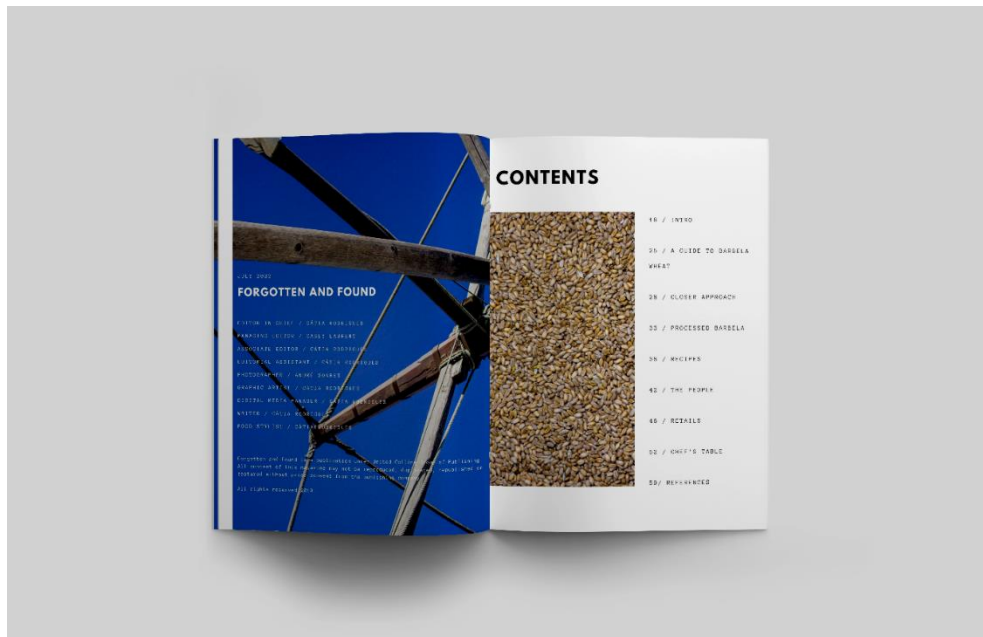


Figure 21 First version mockup of "Contents" section of the magazine (Own authorship)



Figure 22 First version mockup of "Report" section of the magazine (Own authorship)

It is important to point out that we had the opportunity to have a casual report/talk with *Paulo Fernando Paulino Horta* from *Farinhas Paulino Horta* – something that we mentioned we wanted to include on our magazine. During this conversation there was a sharing of the knowledge he had acquired during all the years he worked with flours and what he experienced since he was a child, with his father, in this family business that has been going for four generations now.

We would also like to mention that even though it was difficult to find people that had the knowledge we were looking for and that were available to talk to us, we believe that it would be an advantage to have other interviews to compliment the one we had – this way, we could have different points of view regarding one single ingredient.

Finally, later in the development of *re.lem,brar* we prototyped some different layouts that were more though about.

On those layouts it can be understood what type of aesthetic we are going for and how we would display some of the contents – on the *Appendix* section, from page 88 to 94 of this document, you can find the layouts referenced – firstly we

introduce a section where we reference the topic of culinary extinction, as an introduction to the magazine and then, a section about the talk we had with *Paulo Paulino Horta* from *Farinhas Paulo Horta*, where we also make use of some of the techniques we mention before, to play with the human senses.

Name, Visual Identity and Branding

On a final stage of the prototyping of our food product – the interactive and sensory magazine – we worked on our name, visual identity, and branding.

Firstly, our title name.

From the start, our idea was to have a play of words, something catchy and that was easy to remember. Initially, one of the names that was in our first prototype was “*Forgotten and Found*”, a play of words of the concept of the lost and found – a place in a public building where things people have lost are stored –, to better fit our concept we changed the lost to forgotten, in a way to better characterize our magazine, since we would be working with forgotten ingredients that we wanted to be found again.

After, we realized that it was more appropriate to have a name in Portuguese, since we would be working with Portuguese forgotten ingredients – that way, even if we choose to take this project to other countries with different mother languages than Portuguese, we will have the option to translate the name.

With that in mind, we tried to translate into Portuguese what was the first name of our publication – *Esquecidos e Achados* – but we realized that it was not the best fit; it was a long title possibility too easy to get lost on the minds of our customers and it did not flow the way we wished. We needed a shorter title name that was easy to memorize and had a meaning related to our project and that it needed to be in Portuguese.

Amid some discussions between our former colleagues and professors, we ended up with the final name for our project: *re.lem.brar*.

The name comes from the Portuguese word “*relembrar*”, that translates to remember and it means to “*bring back to memory*”. (“relembrar”, 2008-2023) We also choose to keep the end-of-line division dots on our name, as it is a way to break up a word into syllables to be easier to read and it is different – this way, it would stand out in the middle of other publications. Finally, in terms of memory

and retrieval, breaking words into syllables can make it easier to remember and retrieve them from memory, as people often use mnemonic techniques based on syllables to recall information.

Afterwards we worked on a tagline for our magazine. We wanted something that would also be a play of words which could convey the ideas of time and memory.

Below we present the taglines that were created during a brainstorming session – again, we wanted something in Portuguese, for the same reason as stated before – it is also important to note that the suggested taglines below are also translated into English only for the convenience of those who don't master the Portuguese language.

- Sabores Esquecidos | Forgotten Flavors
- Trazer à Memória | Bringing to Memory
- Sabores trazidos à Memória | Flavors Brought to Memory
- “Ontem, hoje & amanhã” | “Yesterday, Today & Tomorrow”
- Sabores do tempo | Flavors of Time
- Ao Sabor dos Tempos | To the Flavor of Time
- Sabores da Memória | Flavors of Memory
- Saborear Memórias | Savoring Memories
- Memento de Sabores / Memento dos Sabores | Memento of Flavors
- Sabor de Lembrança / Lembrança do Sabor | Flavor of Memory / Memory of Flavor
- Revivência do Sabor / Reviver o Sabor | Revival of Flavor / To Revive the Flavor
- Momentum dos Sabores | Momentum of Flavors

We ended up going with the above tagline of “*Ao Sabor dos Tempos*”, that translates to “according to the times” or, in a more literal translation, to “to the flavor of the times” – yet, if we would choose to transport the tagline to the English language, we would go with “*To the Taste of Times*”.

From there, we started to work on our visual identity and branding.

Foremost, we wanted to create a color pallet that would fit our project, something that was harmonizing, more earthy and not too flashy – something that would complement well our project and would let the ingredients themselves shine.

As for the cover, we started with the idea of focusing on the ingredient itself, either showing it in a greater detail or in a more intimate way.

The first experiment with the cover still had the former name of the project and, in here, we decided to use a photography really close-up of *barbela* wheat seeds.



Figure 23 First prototype of the magazine cover (Own authorship)

(figure 23)

After some discussing, we came to the conclusion that this type of cover had a lot of information and could become tiring along the way, so we returned to the drawing board.

We then played around with different color palettes and lettering; we ended up settling down on something more classic in terms of font and something more neutral in terms of colors. (figures 24 and 25)



Figure 24 Logo and tagline of re.lem.brar (Own authorship)

As for the logo, we choose to keep it simple and just keep the lettering with the name of the project – *re.lem-brar* – and the tagline – *Ao Sabor dos Tempos*. (figure 24)



Figure 25 Color pallet of re.lem.brar (Own authorship)

By and by, for the last stage, we were able to achieve what would be the art direction of our final prototype. As seen below (figure 26) we were able to achieve the clean design we wanted by giving the ingredient the spotlight, while offering a cleaner look to our magazine cover.

The only elements presented on the cover of our magazine are:

- Name and tagline.
- Number of the issue.
- Name of the ingredient – in Portuguese and its scientific name.
- Optional: the reference to an important name or collaboration in terms of that particular issue.



Figure 26 Cover of the first issue of re.lem.brar (Own authorship)

The same logic was applied to the sensory box within which the consumer would find the magazine and the items related to it (figure 27) as we wanted them to go together and have the same design.



Figure 27 Final prototype of the sensory box of the first issue of re.lem.brar (Own authorship)

Gastronomic Experience

As previously mentioned, within the scope of the FORK Organization Challenge on Experiencing and Envisioning Food; Designing for Change, during the first year of the master's degree in Food Design, the students were challenged to develop a food product or service during the 1st semester, and a food experience during the 2nd semester.

In the same context of the project *re.lem.brar*, it was developed a gastronomic experience that would complement well everything that was developed and researched until that moment.

It is important to take into consideration that this experience has already taken place more than a year ago and, even though some of the details could have been more lined up, it still offers a good baseline for it to be replicated and recreated while focusing on other forgotten ingredients and traditions. Further ahead we will discuss what could have been done differently in order to have a better experience.

With that said, the gastronomic experience was created to top off the magazine itself, considering its concept and creating an event around some of the Portuguese forgotten ingredients.

With this in mind, the experience created was a small degustation around some of these ingredients, in a more intimate setting, where the participants would be able to engage both with the food and with each other – the choice of using a variety of ingredients for this event was on purpose, as a way to better introduce the concept of the project and to show the diversity of ingredients and traditions that are on the verge of being forgotten. Nevertheless, the guidelines used for this experience could easily be translated into a gastronomic experience that focuses on a single forgotten ingredient – this could be a good way to advertise the different issues of the magazine, while working with different national chefs and/or producers to introduce these ingredients.

Below we will expand on the point of view of the issue in question and on the main touchpoints regarding the gastronomic experience. Afterwards we will explore the different moments in each phase of the experience and what the customer journey would look like. At the end, the images taken during the real experience will be presented and we will also discuss where there may be room for improvement.

POV Question

The Portuguese community needs to rediscover the forgotten Portuguese ingredients/foods because we are losing our culinary tradition and forgetting the foods that are part of our identity.

Touchpoint

Title: *re.lem.brar – Um repasto com os ingredientes esquecidos de Portugal*¹¹

Experience Type: Meaningful (discovery)

Desired Reaction: Understand/realize the amount of forgotten ingredients still to be re-discovered by them (the participants)

Desired Results:

- The end-user should interact during the experience – either with the ingredient, dishes, or the other users.
- The end-user should be curious about finding out more about the forgotten ingredients.
- The end-user should ask questions about the ingredients, dishes and the techniques involved.
- The end-user should leave the experience wondering about the topics discussed.

¹¹ re.mem.ber – a repast with Portugal's forgotten ingredients

Experiencescape Elements

People: small group of participants (minimum of 4 and maximum of 6), between the ages of 18 and 40, may or may not be related/working in the food area.

Place: Cascais FoodLab, on the 18th of July 2022, between 14pm and 17pm.

Objects: the prototype of the magazine, books related to the project re.lem.brar, like *Lost Feast* and *The Third Plate*, decorations – these decorations are some forms of the forgotten ingredients, like dehydrated parsnips and purple carrots, *Elvas's* plums, *barbela* flour, etc. – as well as some QR codes that give the participants information about some of the ingredients they are eating.

Rules: there is no specific set of rules other than to stay within the topic, the participants are encouraged to interact with each other.

Relationships: colleagues and acquaintances.

Blocking: all experience will be focused on the table where the participants are having the degustation experience.

Technology: the participants are welcome to use their phones to find what ingredient the QR codes scattered on the table are and share with the other participants.

Designed Interactions

- Place the participants facing each other, to create discussion moments, as in a Jefferson meal.
- Scatter forgotten ingredients to make the participants wonder what they are and to interact with them – either eat, smell, or feel them.
- Scatter QR codes on the table, so the participants can interact with them and find more information – in this way, encourage a discussion about the ingredients.

Contributors

Both in the front and backstage the main contributor was Cátia Rodrigues herself. During the development of the food experience the teachers from the different disciplines helped in the creative process and with any problem that would come up – from the menu, testing recipes and finding the space.

Co-creation

The participants will have a medium to high participation during the experience, since they are encouraged to interact with each one of the participants and with the dishes and ingredients themselves.

Enhancements

To enhance the experience, and as mentioned before, there were ingredients spread across the table, to encourage the participants to interact and ask questions.

There were also books and QR codes for the participants to interact with and find more information.

In the end of the experience, each one of the participants got to take home a jar with some seeds and a photocard, to have a physical memory of the experience with them after.

Transition

The transitions during the experience will be explicit – these being the transitions from one dish to another. This is announced by Cátia Rodrigues herself.

Table 3 Different phases of the gastronomic experience (Own authorship)

Anticipation Phase	Participation Phase	Reflection Phase
Brand Identity	Arriving at location	Gift taken from the experience – to interact at home
Naming	Welcoming and sitting	Survey
Invitation	Introduction	E-mail with pictures from the experience
	Explanation of the experience to the participants	
	Hors d'oeuvre + explanation of the ingredients and dish ¹²	
	Appetizer + explanation of the ingredients and dish	
	Salad + explanation of the ingredients and dish	
	Main course + explanation of the ingredients and dish	
	Dessert + explanation of the ingredients and dish	
	Announcing the end and thanking the participants	
	Giving the gift to take home + explanation	

¹² We will serve the participants at their rhythm, the purpose is not to fast forward through the different moments during the meal, but for the participants to have time to interact with it and really taste and experience the ingredients. It is also important that the participants share their point of view with the other participants, creating a discussion between them.

As for the menu that was served during the gastronomic experience, it was presented as it follows:

- For the starter it was served *barbela* wheat bread leavened with natural yeast, a side of local olive oil and a hummus made with *feijoca branca* (a variety of *Phaseolus vulgaris*).
- It was followed with a *beldroegas* (*Portulaca oleracea*) soup.
- As for the main dishes, tuna *Muxama*, with *Algarve* orange vinaigrette, *coração de boi* (ox-heart) tomato and some herbs.
- It was also served an *escabeche* of *pastinaca* (*Pastinaca sativa* kind of pickle) and purple carrots.
- For dessert, we served *sericaia* (creamy custard-like oven baked dessert) with *ameixas d'Elvas* (preserved plums).
- Along the whole degustation, to drink, we served some water flavored with *Algarve* oranges and mint and paired with a Portuguese white wine.

As mentioned before, when the participants were served a dish, it was explained what it was and some of the background, history and techniques around the forgotten ingredients used – even though some of the ingredients are not forgotten and are known by the average Portuguese consumer, we thought it would be good to incorporate mostly ingredients that are local to us.

Below is shown what the customer journey of this gastronomic experience would look like (figure 28) from start to finish. This is illustrated with *emojis* to convey the emotions that the user would feel during the event.

Lastly, after more than a year later, there are some considerations that could be reviewed to better the experience itself.

Most important, of all the elements, the place is a point that could be worked on. Even though Cascais FoodLab and their collaborators were very welcoming and inviting, the gastronomic experience would benefit from a more intimate space, with less distractions, but the fact that they had an open kitchen, where the

participants could see the different dishes being prepared, was a big advantage that contributed to the whole experience.

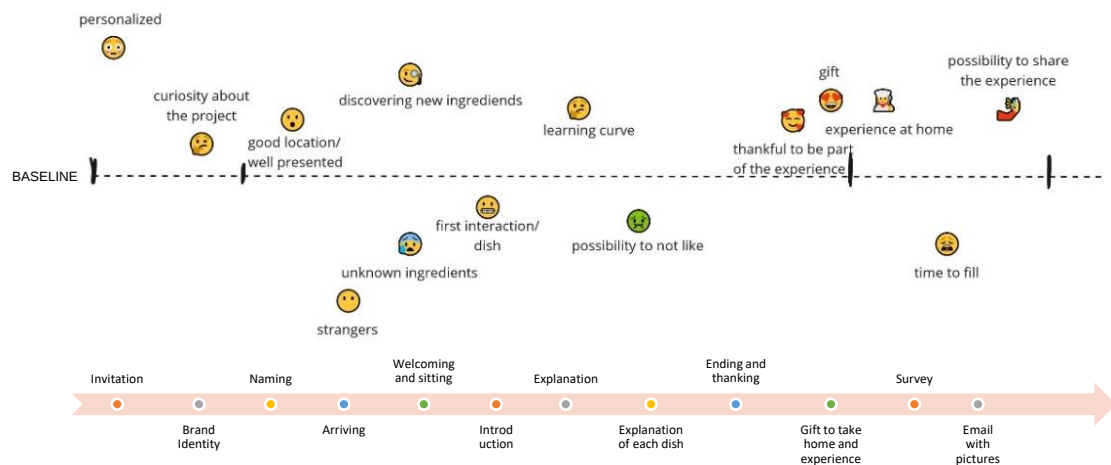


Figure 28 Customer Journey of the gastronomic experience (Own authorship)

Another element that would benefit the experience, would be to have a special guest – either a producer or chef – who would be familiar with some forgotten ingredients and that could pass on some knowledge to the participants and interact with them.

Finally, on the montages below (figures 29, 30 and 31) is shown a compilation of the images taken during the real gastronomic experience.

On a last note, the final gastronomic experience happened and all the preparations – as recipe testing, arrangements and the preparations behind the scenes – were a great opportunity to learn and understand what would work better in a setting like this. In the end, we believe that it was a memorable experience, and we were able to raise awareness about the forgotten Portuguese ingredients among the participants; we were also capable of making them interact with each other and share their thoughts about the issues surrounding culinary extinction. The participants left the experience fulfilled and wondering what would happen next.



Figure 29 Details of the gastronomic experience (photography and edition by Gabriel Vieira)



Figure 30 Details of the gastronomic experience (photography and edition by Gabriel Vieira)



Figure 31 Details of the gastronomic experience (photography and edition by Gabriel Vieira)

Conclusions

As we wrap up the development of the *re.lem.brar* project we came to various conclusions.

This project was based primarily on research to understand one of the biggest issues in our global food system – culinary extinction – and then, on the development of a food product – an interactive and sensory magazine about the forgotten ingredients of Portugal: *re.lem.brar*.

Based on the findings, it can be concluded that it is a real threat to our global food system with a variety of long-term effects, but there is an opportunity to fight this extinction that is happening at this moment in time. We need to take advantage of the people with the knowledge of our foods, gastronomic traditions, culinary techniques and cultural heritages – producers, researchers, chefs, and so on – to help raise awareness among the consumers.

From the moment we started to develop our publication, we wanted something that had the opportunity to interact with the user, as we believe is the best way to immerse them on the experience, get them excited to learn more and encourage them to share with others and, we believe we were able to achieve a concept and final prototype that has the potential to become something tangible and successful.

It is interesting to highlight that during the development of *re.lem.brar*, there were other projects that were released that followed closely some of ideas that we incorporated in our own project. An example was the publication *Farta*, released in July of 2022, with their first issue dedicated to the *Francesinha* and, their goal to give a spotlight to the traditional Portuguese cuisine – they want to tell stories of the people who prepare these dishes daily, explain the context in which they are created, shared and eaten. This project is having a big success, both in and outside of Portugal, with their second issue already released in April of 2023 and with their first issue sold out in most places.

Because of that, we believe that our project could have as much success, if not more, when compared to *Farta*, considering that both publications are focusing on something related to the traditional Portuguese cuisine, while going on their own direction – as we are focusing on ingredients or food byproducts and presenting it to the user with the twist of being a more interactive and sensory experience.

Nevertheless, seeing the success of other projects like ours is critical to understand what could be our place and understand how the consumers would react – fortunately, with the success of *Farta*, we can conclude that, in fact, there are consumers with a raised awareness about the problems in our food system, who are looking for ways to get the knowledge about our food traditions.

It is noteworthy that after the first year of the master's degree, the project *re.lem.brar* was presented on two different occasions apart from the presentations that took place during the academic year.

Firstly, on the World Food Day, on October 16th of 2022 on *Pavilhão do Conhecimento: Centro Ciência Viva* in Lisbon, while celebrating the National Gastronomy Day. It was presented in a *Pecha Kucha* format session among the projects of our former colleagues.

Secondly, and on a bigger note, on the 2nd World Food Design Day, also on October 16th of 2022.

Our project had the opportunity to be present on the latter because it was selected among the 13 projects which were presented at the Barcelona Design Week 2022 within the scope of the FORK – Design School Challenge – from Estoril Higher Institute for Tourism and Hotel Studies (ESHTE, Portugal), ELISAVA in Barcelona (Spain) and *L'École de Design de Nantes* (France).

The project *re.lem.brar* was among the top three awarded by an international jury and had the opportunity to participate in the World Food Design Day 2022 that was mentioned before, as announced on the non-profit organization's social platforms.

Finally, we are very appreciative of both the opportunity to participate on the FORK Challenge and the opportunities that we had throughout the development process of our project – the occasions we had to present it to a variety of people, all the feedback we received from both our professors and researchers working on Food Design, the freedom to create a project that we truly believe in and having the opportunity to share it.

From the research, through the development of the project and managing to develop and create the prototype, we believe we have a good foundation with a great project that tackles important issues within our food system. Having such an innovative approach and given the opportunity to make it a successful project, we rely on the next phase: release it to the public.

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Appendix

Transcriptions of excerpts from report/talk with Paulo Fernandes Paulino Horta

- i. “It is important to encourage people to sow, because instead of the cereals coming from Ukraine (in reference to the war) and us all thinking that we are going to go hungry. After all, we are able to produce food here (in Portugal), use less fuel, do a lot more fun things and let everyone keep more money near them.”
- ii. “Many years ago, the life of the people in the rest of the world other than the capitals was very different. As people wanted to live a little better, they started to go to Lisbon, the capitals, but they came from places far away. (...) We have become a lot in a short period of time, 40 years – 40 years is not something out of this world, there was no money, people did not earn the same salaries as in Lisbon, Portugal had one foot in the 20th century and the other foot in the 19th century.”
- iii. “The country worked at two different speeds, the city was already more advanced and the rest of the country did not even have electricity.”
- iv. “Before we (Portugal) joined the European Union, there was great poverty. The country was really behind, it had these development focuses, but in the rest (of the country) was very complicated. What does that do? People still lived exactly as they did in the 19th century.”
- v. “When we took the leap we started to lose things, obviously, like any nation. Then we started to globalize, forget things, food, then there are social movements that make you forget things, including making bread, which nowadays daughters are teaching their mothers, because they went to learn from their grandmothers because their mothers did not know (how to).”
- vi. “As we were poor, we thought that what made us Portuguese, was what made us late. We did not even know how to be rich. We

wanted to escape that and, ended up losing our identity in favor of being modern.”

- vii. “We tried to take the leap and we including tried to move away from everything that seemed old, like making bread.”
- viii. “There was this movement away from traditions, but we have and advantage, whereas in other places certain things have been disappearing for hundreds of years and now they are trying to rediscover them, even though, by then, it is very difficult to go back and find out what it is like, in the sense that a lot of people are looking for how to do it, but they only have one problem, the people who knew how to do it, have all died. But that is still the fantastic thing about Portugal, even with a lot of things already disappearing, we still have the opportunity to turn our weaknesses into our future and our strengths for tomorrow, because you can still find people who know how to do it and you can still find the flavor and what it was like and if you know that, you have an advantage over other, so that when you present it to others, they will ask you: “This is f- (vulgarity) great, what is this!?”
- ix. “What I found at the time, and continue to find and I begin to see more as an advantage is that as you go along, especially when you are involved with food, you begin to realize that there is a demand for a lot of things, including a research for origins and originality, and you have to be original and not make the same hamburger as they make in New York. We can have hamburgers as much as we can, but if we only had hamburgers, it would be a huge hardship.”
- x. “The funny thing, on a global stage, is that people consume a lot of this and that media, what makes you unique? What makes you unique is being Portuguese, because other are not like us.”
- xi. “Industrialization in other countries was so long and massive that nowadays they don’t know what is good!”

- xii. “The level of money we had 40 years ago, they already had for longer, families already had 2 cars, a house, the supermarkets were already full, even today in many things we are delayed, we could even see it from their mistakes.”
- xiii. “As it was so massive there (internationally), the small producers disappeared and the people who knew how to do things also disappeared and it became just one thing based on price, the result reached a certain point where they don’t have a great gastronomic variety.”
- xiv. “For example, I have relatives in the Netherlands, and when they come here, they get tired of eating, and it is that thing where the Portuguese mother always tries to find lunch and always tries to send a lot of food, which is something very much ours, our culture, and it is funny, because others don’t do it, but they love it when we do.”
- xv. “When things are very industrialized, including wheat, you don’t even have nutrients, you just have volume, but it is all artificial. For example, when you discover or put real fruit in your mouth, when you put a banana in your mouth, do you realize that that banana is different? Why is it different? Because the other was completely injected with fertilizers, it was caught green, it has no flavor whatsoever.”
- xvi. “And the problem with most things in the world is that nowadays they are completely made to give volume, to be cheap for the industry and it is all done in large industries that had to make cuts that no one knew how to make in any other way. The result is anything less than real food than what was eaten 100 years ago. But here in Portugal we have this advantage that 100 years ago for then, for us it was only 40 years ago. We still have time to save things and this becomes our competitive advantage.”

- xvii. “We have to learn how to do it (share the knowledge), improve our marketing, we don’t have to make a cheaper product, we have to make a good product and know how to present it.”
- xviii. “I was born here (*Alenquer*) and my father made flour with that mill, and my grandfather also made it, and my great-grandfather also made it and I come from a long line of millers and that meant something different back then.”
- xix. “Your parents grew wheat, and you had bread, others grew grapes and had wine, others grew olives, and you had olive oil, which were very important, but you needed bread, it was the basis of your diet, so you cultivated your land and gave it to those millers. And those millers kept the fifth part and then gave the rest to the people who trusted them.”
- xx. “Afterwards, you had to have a high level of madness to work alone in these mountains, you had to know how to combat loneliness, that is why not everyone could be a miller, but at the same time, you had to be a highly motivated person and you were going to be alone for a long time. And, without the obligation to have a schedule to do things, it usually went wrong, you started to weaken and everything started to fall apart.”
- xxi. “You had to be super self-motivated, regardless of whether you had to work at night or during the day, depending on the wind, you could do the work and prepare things. Right here, not everyone could handle being a miller and it started to be a family affair, because usually it would go from father to son, it started from a young age, the children gained a taste to it and also develop the set of physical and psychological characteristics that helped them to become a miller.”
- xxii. “Here in the West, you had little water, you had very good land with air humidity, but you don’t have water levels here, but you had good wheat, you had good bread and you had a population. And as the

population increased, you had to make more flour to make more bread, as a result you didn't have the water for the watermills to work like in other places, like in *Minho*, which worked almost all year round, so what did you have here? What you had was wind (the song of the mill), you have wind all year round, always after a certain time of the day, from 6pm starts and sometimes at night you have even more wind."

- xxiii. "This area is super mountainous, but here are mountains that are at the foot of rich mountains where you can grow crops every day."
- xxiv. "You have many areas where the temperatures will be different, sometimes that will also influence the temperature differences. At night you have 4°C more temperature at higher elevations than the lower elevations, but low areas are colder than high areas because as the sun disappears, the hot air will rise upwards and, as this happens, you start to receive this mass of air and you start to have energy to not more the windmills."
- xxv. "People began to discover that there were windmills, then there were wind lines and that is why the culture of windmills began to be created in the West, as if they were creating this culture that they dedicated their lives to windmills, even when they had a family and a home away and, for the benefit of the whole society, they went to the top of the mountains and took care of the mills that require a lot of maintenance and equity."
- xxvi. "Is used to be said that a potter was a sailor at the top of the mountain, who sailed at the top of the mountain because all the technology of the mills came from ships and, if something would have happen, you couldn't make flour and so, people wouldn't eat – because of that, people were worried if something were to happen, because at that time there was no social security."
- xxvii. "There was a connection between the people and the millers."

- xxviii. “I started to really early on with my father, that as people left the villages and started going to the capitals to get jobs and start working other than in the fields, eventually they started to have money and one way you could have been, was to buy the bread instead of making it, so the bakers started to have a lot more work because there were more and more people to sell to and so, they were less concerned with the quality of the product, because they had to have quantity for everyone. Each time they started to use more yeast, and each time it started to ferment faster and each time they used less quality flour and it ended up not tasting like anything.”
- xxix. “I witnessed many times customers say to my father that the bread made with out flour tasted much better, but people will eat anything and there are cheaper options.”
- xxx. “The cycle of bread is also the cycle of life, it was what gave life to people, what have energy to work. In the end, bread is what feeds our society.”

CULLINARY EXTINCTION

Food plays a critical role in today's society, it is an essential part of people's lives, and not just a means of survival.

As many authors concur, there is a strong relation between food and culture – including religion, traditions, and communication, and it is undeniable that we often end up using food as a mean to retain our cultural identity – this referring to a specific set of values, knowledge, language, rituals, lifestyles, attitudes, beliefs, folklore, rules, customs, and others.

We grow up eating food from the environment that surrounds us, it is something that ends up being part of our identity and, it is something we associate with our memories, hence its importance as part of a culture, we should consider food as something that shapes us, our identities, our cultures and, in the end, our society.

The knowledge about these traditional cuisines is passed down through generations, to express their culture and identity and embrace our heritage. But our repetitive actions, as humans, are taking a toll on our planet's biodiversity and, soon enough, if our actions do not change, the world will be stripped of its heterogeneity.

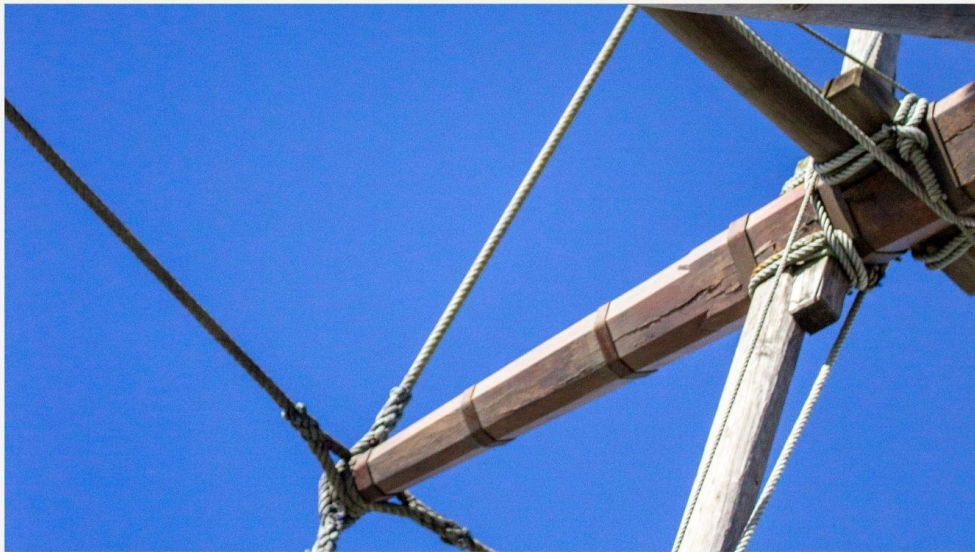


There is an urgency to protect what is part of our culture, our tradition. Even though we have already lost plenty food species, we should mourn those ingredients, accept that we have lost them and dedicate our time to protect the species that are left, to protect the endangered species rather than somehow try to resurrect or bring back already extinct species.

Each one of the species that the world has already lost is an opportunity to teach us an important lesson about today's global food system, it shows us the ecological vulnerabilities threatening our planet's biodiversity, and, we may come to the conclusion that our ecosystems are not in balance and, the loss of other food species is certain to happen if we do not take any kind of action.

4

FARINHAS PAULINO HORTA



We had the opportunity to discover the history of a family business dedicated for 4 generations to manufacture the best flour, in order to make people happier!

Within the scope of our research around barbela wheat we found very few producers and farmers that still worked with this type of wheat - even though it is a specie that is more resilient, not a lot of people work with it, as it is less least sought after and, therefore, less used.

Fortunately, we encountered one of the most enthusiastic producers that is still working with barbela wheat.

Paulo Fernando Paulino Horta is the forth generation in his family to keep the family business going with still a lot of caring around their products.

PHOTOGRAPHY BY CÁTIA RODRIGUES

“The cycle of bread is also the cycle of life, it was what gave life to people, what gave energy to work. In the end, bread is what feeds our society.”



12

PHOTOGRAPHY BY CÁTIA RODRIGUES

“There was a connection between the people and the millers.”

During our talk, Paulo Horta explained the importance of the whole process of the traditional method of milling - focusing on the life of a miller in their windmills.

When the culture of windmills was first created on the West, the millers started to dedicate their own life to them - even when they already had a family and house away - they did that for the benefit of the whole community they lived in.

They went to the top of the mountains and took care of the mills that required a lot of maintenance.

As Paulo explains to us, many decades ago, the people used to say that a potter was a sailor at the top of the mountain, who sailed at the top of the mountain because all the technology of the mills came from ships.

If something would have happened to the wind mills, you could not make flour and consequently, people would not eat - because of that, people were worried if something were to happen, because at that time there was no security of any kind, if something were to happen.





PHOTOGRAPHY BY CÁTIA RODRIGUES



How can we turn this barbela wheat seeds into flour?

Thanks to “Farinhas Paulino Horta” we can understand a little bit about the traditional milling process.

10