

# HELOE DESSERT: REFORMULATION OF WATER DROPLET CAKE WITH ALOE VERA, LEMON, AND HONEY

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**Abstrak:** Pembukuan teoretis dan praktikal ini menggambarkan pengembangan produk makanan baru melalui kerangka teori Pengembangan Produk Baru (NPD) dengan target pasar Generasi X Eropa, terutama penduduk Swiss. Setelah penilaian menyeluruh terhadap pasar, produk yang dikonsep adalah makanan penutup sehat yang berasal dari camilan tradisional Jepang, Water Droplet Cake (Mizu shingen mochi). Untuk membantu dalam mencapai produksi versi produk yang siap dipasarkan, penelitian utama yang terperinci seperti diskusi grup terfokus dan kuesioner digunakan. Sementara itu, penelitian sekunder dalam bentuk kajian literatur juga dilakukan untuk mendukung penelitian utama. Melalui ini, model NPD yang diusulkan oleh penulis akan dieksplorasi ketika produk berevolusi, sehingga menghasilkan produk terkemuka dengan standarisasi resep yang terperinci.

**Kata Kunci:** Makanan Sehat, Pencuci Mulut Sehat, Detoksifikasi, Pengembangan Produk Baru, Generasi X, Pasar Eropa, Lemon, Madu, Aloe Vera.

***Abstract:** This theoretical and practical assemblage illustrates the development of a new food product through the framework of New Product Development (NPD) theory. The target market is Generation X of Europe, mainly Switzerland residents. After thorough assessment of the market, the product conceptualized is a healthy dessert that is derived from a traditional Japanese street snack, Water Droplet Cake (Mizu shingen mochi), to fill the market gap. To assist in accomplishing the production of a market-ready version of the product, detailed primary research such as focus group and questionnaires were utilized, while secondary research in the shape of literatures study are also done to support the former. Through this, the NPD model proposed by the author will be explored as the product evolves, therefore resulting in an advanced product with detailed standard recipes.*

**Keywords:** *Healthy food, Healthy Dessert, Detoxification, New Product Development, Generation X, Europe Market, Lemon, Honey, Aloe Vera.*

## **INTRODUCTION**

This research will investigate and test the market feasibility of a new food product aimed at the European marketplace. The author will initially critically review New Product Development (NPD) theory to form a framework for the development of this product and through an appraisal of entrepreneurial core theory will propose an approach to the marketing and launch of this product which would aim to maximize its chances of success. The author will then create and market test this product before providing an evaluation including recommendations on how this products

The Nielsen Company (2015) did a survey that polled over 30,000 individuals online. The consumer mindset has shifted and consumers look for products that claim to boost their health and promote weight loss. 49% of global respondents think they are obese, and 50% are trying to cut some weight. Their research concluded that there is a huge opportunity for manufacturers to provide healthy products for consumers that want and need it.

The product will be Heloe Dessert. The dessert was inspired by a Japanese dessert called Water Droplet Cake. To achieve the most from the dessert, the 3 main ingredients from the traditional Water Droplet Cake will be replaced by Aloe Vera, Honey, and Lemon. The aloe vera will be made as the clear pudding drops, while the honey will be served as a condiment alongside the lemon. The lemon itself will be dried and ground into a lemon powder. The plating of the dessert will be rethought to produce a whole new dessert different than the original Water Droplet Cake.

## **LITERATURE REVIEW**

### **Creativity**

In order to develop a new product, creativity is a necessity. Creativity is concerned with new ideas, and innovation with using them. Burroughs (2011, p. 53) described creativity as ‘the production of something that is both original and useful’. Burroughs (2011) also elaborated on how a creative new product should be one that is distinguishable from existing products in a novel way, but is still or even more successful in achieving the original purpose it was intended to.

Hauser, Gerard, and Abbie (2006) mentioned creativity in the “fuzzy front-end” of NPD as a critical research priority. Research done by Reid and Brentani (2004) also suggests that activities and decisions done in the “fuzzy front-end” stage of NPD are the starting point of the NPD processes and will determine the direction the new product’s path. Additionally, actions taken at the starting point of NPD grants the greatest time savings along with the least expense (Smith and Reinertsen, 1991, cited in Reid and Brentani, 2004). Therefore, it can be proposed that creativity is an important first step of NPD, and may determine how successful is the new product’s future

## **Innovation**

Innovation is the continuation of creativity. Product innovation is important as a small firm's chances of survival are dependent on it. Furthermore, Zahra and Covin (1994, cited in Baregheg, 2009, p. 1324) mentioned that 'Innovation is widely considered as the life blood of corporate survival and growth'. Innovation itself is defined as 'the successful implementation of a creation' by Heunks and Roos (1992, cited in Heunks, 1998). Innovation is considered as one of the success factors for NPD, considering new products are the result of innovation, where the NPD process is a subprocess of innovation. (Trott, 2002 p. 200). Some NPD theories according to Fuller (2011) such as Line Extensions, Reformulation of Existing Products, etc. were mentioned with different words of same meaning by Kahn (2018) as part of product innovation. Product innovation has relevance with new products, new services, or new programs (ibid. 2018).

Managing innovation deals with the environments that have to be in place to ensure the organization as a whole is given the chance to develop new products (Trott, 2002). Thus, we can assume that innovation plays an important role in NPD and the survival of a business, because the ability to change and adapt is essential to survive.

While doing this research, the author discovered that even though innovation is something that is renewing as time goes by, the research on innovation itself is not revitalized. This statement is backed up by Kahn (2018) who states that many of today's organization still find innovation elusive. Most of nowadays research is based on research that has been done at least 10-20 years old. Many people have misunderstanding of what innovation means, and it leads to incorrect decision makings (Kuratko *et al*, 2014). The author will make an incremental innovation related to NPD theory of Reformulation of Existing products, and this will be explained in more detail later on this chapter.

## **Entrepreneurship**

Okpara (2007) argued that creativity leads to innovation, while innovation leads to a successful entrepreneurship. He believes that entrepreneurship cannot exist without innovation, while innovation itself begins with creativity. Drucker (1986, cited in Morrison *et al*, 1999, p. 8) defines entrepreneurship as 'the effort to create purposeful, focused change in a firm's economic or social potential, plus the application of distinct entrepreneurial strategies and entrepreneurial management'. Furthermore, Curran and Burrows (1986, cited in Morrison *et al*, 1999, p. 8) supports the previous statement by describing the process of entrepreneurship as:

The innovatory process involved in the creation of an economic enterprise based on a new product or service which differs significantly from products or services in the way its production is organized, or in its marketing. Thus, we can conclude that entrepreneurship, bearing a heavy link to innovation and creativity, is about more than starting and owning a new business. It is the process of starting and managing the new business, bringing it to success.

Similar to how creativity and innovation has relation to NPD, entrepreneurship also has a heavy relation to NPD. A study done by Ozer (2006) found that entrepreneurship orientation is associated with NPD. Entrepreneurship orientation is described by Morris & Paul (1986, cited in Ozer, 2006) as 'the propensity of a firm's top management to take calculated risks, to be innovative, and to demonstrate proactiveness. Ozer (2006) found that entrepreneurship orientation relates to NPD in the way it provides an environment for learning and taking risk, which associated with greater performance in NPD. Hence, we can conclude that entrepreneurship has a major impact in terms of the success of NPD, and it correlates with innovation and creativity.

## New Product Development

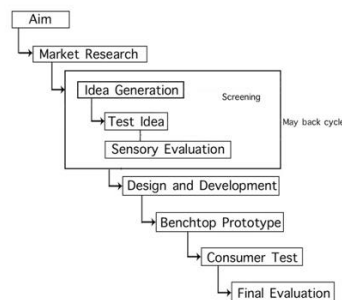
The definition on New Food Product Development is derived from New Product Development (NPD) theories due to the same stages of development (Fuller, 2011). To Fuller (2011), NPD gives new life to a company as it replaces products that are no longer selling well, and an essential stage of in the growth of a company. Adding to this, Wismer (2008) agrees that NPD is vital for the food industry to grow, due to the changing food demands and interests of consumers.

The reasons for this are justified by Fuller (2011) with his two discovery. The first one is that as the product lose profitability, due to new foods demand by the public, they need to be replaced, revived in some manner, or see consumer rejuvenation. The second one is that successful new products can contribute tremendously to a company's continuing profit picture, because the creation of new market niches provides opportunities for companies to enter with their new products, such as vegan market. Other than market niche, new marketplaces are created, such as e-commerce. A company will need new products that are more suited to the new customers to enter those new marketplaces. Fuller (2011) also mentioned that new products give opportunities for significant growth to satisfy management's long-term business goals.

Earle *et al* suggested a framework for product development called Critical Product Development Process, with 4 main stages consists of product strategy; product design; product commercialization; and product launch. It is named after the fact that this process is based around critical decisions and produce critical analysis from the activities throughout the project.

Fuller (2011) proposed a model for the stages of product development that is different than Earle. It started with company objectives as the trigger to product development. It is followed by analyzing the ways and means to reach this objective. These first step needs to be established for the development team to know what is the plan and why. Once the senior management's goals, determination, and dedication to these intentions is clear, it is followed by the identification of customer and consumer needs. With this information, the marketing team can start rummaging through ideas on what new products would meet the company's objectives and the needs of customers and consumers. By now, each data obtained from trial and error is transformed into useful information to develop better products. As soon as production samples have withstood successful consumer trials, management will decide whether it will undergo a test market or go directly to a regional launch. The final phase of any NPD is an appraisal of the launch and competitor's reaction to it. Be it successful or failure, both needs to be evaluated to learn which is profitable and which is a loss (ibid. 2011).

After analyzing the two different new food product development model above, the author would like to propose a new model which is a simplified combination from the two. This model will be the main basis for this NPD research.



**Figure 2.2 Proposed NFPD model**

The proposed model starts with figuring out the aim of starting this NFPD, as it links with the idea generation itself (Bhuiyan, 2011). Finding the aim and objective to start the NFPD is important to make sure the product's goal in the future is clear (Fuller, 2011). Once the goal is clear, then market research follows after. Finding out the aim beforehand is important to link the NPD process to it, as well as providing the focus for idea generation and market research (Bhuiyan, 2011)

The screening stage will happen along with the idea generation, testing, and sensory evaluation. This step will re-evaluate the product's feasibility and financial review (Fuller, 2011). The reason the author omitted consumer research screening is because the product idea itself is based on the market research and aim. Sensory evaluation is needed as it assesses the quality of ingredients, the product formulation, and the measurement of consumer acceptance (De Kock, 2018). Sensory evaluation is 'a scientific discipline used to evoke, measure, analyze and interpret those reactions to characteristics of food and materials as they are perceived through the senses of sight, aroma, taste, touch, and hearing' (Poste *et al*, 1991, cited in De Kock, 2018, p. 1). In this step, the NPD may experience a back cycle if the product is not as expected, and can't be further developed.

Design and development stage is where the conversion of idea into a product that is producible and attestable (Bhuiyan, 2011). This stage is necessary to produce a good benchtop prototype because a benchtop prototype needs to be as similar as the real product (Fuller, 2011). Following that is consumer test. According to García-Milon *et al* (2018), approximately 12,000 new products was introduced to the European market between 2011 and 2013. 26 weeks into the market, 45% had been taken down. A year after, 76% had been withdrawn and only 24% of those launches had managed to survive a year in the market. This shows how important a consumer test is, to detect defects in the early stage of production, and fix it (Dijksterhuis, 2016,). The author decided to use consumer test as a way to test the product, to help envision the acceptance or rejection of the newly developed product (Grunert *et al.*, 2011). Lastly comes the final evaluation. This is the judgement stage whether or not this product will be released into the market. This stage will have an appraisal of the consumer test, and how to further perfect the product tested (Fuller, 2011). Even though commercialization is a critical area of concern, this NPD model stops at this stage as it focuses more on the pre-commercialization stages.

### **Target Market and Current Innovation**

Current generation X is making us reconsider what is middle-aged. Their mindset is decidedly younger than its chronological age. Jurkiewicz (2001) interpreted generation X as people born between 1963 and 1981. There is a possibility that this generation may still be raising young families while planning to build their career longer than their predecessors. Considering that, Generation X tend to consume healthy foods, exercise regularly, and do a routine medical check-up as part of health insurance. According to Mintel Adulthood and Health report (2017), even though more than 50% of Generation X say they live a healthy lifestyle for most of the time, almost a third of them mention their struggle with weight, and it became a number one health issue. As people age, it is harder to burn calories because the body's metabolic ability decreases. Middle-aged adults nowadays find it hard to balance between healthy lifestyle and indulging (Mintel Adulthood and Health Report, 2017). Thus, the product offered is aiming to cover this gap in the market where the product is indulgent yet contributes to a better health.

A research done by Mintel (2017) and The Nielsen Company (2015) found that Generation X are willing to spend more for foods marketed as healthy. Mintel found that 69% of generation X women and 60% of generation X men are showing interest in products that contributes to their health. Same goes to The Nielsen Company's research as they found 8 out of 10 respondents in Europe (79%) are willing to pay a premium for healthy foods. Figure 2.5 demonstrates the percentage of respondents more than willing to pay more for healthy attributes that fits the product offered in Europe out of 30,000 respondents spread across 60 countries. (The Nielsen Company, 2015, p. 14).

Currently, Europe is considered as the top destination for wellness destination with great health features. Far beyond spa, the wellness concept surrounds nutrition, fitness, and life-enhancing activities for all ages. Health and wellness are momentarily a big trend that has saturate many divisions, from wellness-inspired buildings to every achievable type of consumer product. According to Global Wellness Institute, the rise of this trend is affected by the increasing consumer demand for all things affiliated with a healthy lifestyle (Kneipp in Mintel Medical Wellness and Tourism, 2017).

Recent innovations are promoting "healthy indulgence" to satisfy consumers that are seeking out indulgence minus the "guilt". Many manufacturers have responded to this demand by providing indulgence with added health benefits, such as sugar-free, non-alcohol, and many more. This kind of indulgence appeal to consumers not only by the healthy lifestyle it promotes, but also by the appealing visual which excites consumers to try and join the healthy lifestyle bandwagon (Haigh in Nutrition Insight, 2018). Overall, the healthy indulgence trend is set for expansion in ingredients, flavors, and markets. Considering these findings, the author has created an indulgent dessert to satisfy the target market, while following the current market trend.

### **The Product**

The product proposed is a pudding, inspired from Japanese traditional dessert called Water Droplet Cake. The main component of this product is the Droplet Cake, which in fact, is not a cake, but a pudding made from agar-agar and water. Armisen and Gaiatas (2009, p. 91) defined Agar-agar as 'a mixture of agarose and agaropectin fractions in variable proportions depending the original raw material and the manufacturing process employed'. Agar has the greatest content of 94% soluble fibres than any other available foods. Fibres itself is 'fraction of the nourishment that is not digested and able to transit through the gastrointestinal tract and upon reaching the colon may partially ferment causing non-fermented part together with water, intestinal bacteria, and other compounds to be excreted' (ibid. 2009, p. 99). The agar will be accompanied with a little bit of sugar, to ensure it hardens with less cohesive texture. A study done by Ellis *et al.*, (2019) has found that an increased level of sucrose helps melt the agarose component better, thus increasing the viscosity of the liquid at the same time. The water itself will be substituted with aloe vera juice. Each aloe vera leaf contains therapeutic properties such as promotion of radiation damage repair, anti-diabetic, anti-oxidant effects, anti-bacterial, immunostimulation, and anti-inflammatory effects (Hamman, 2008).

The first component to accompany the droplet is honey. Honey is used to replace molasses because of the beneficial ingredients it contains. Honey itself is 'a natural substance produced by honeybees, *Apis mellifera*, from the nectar of blossoms or from exudates of trees and plants giving nectar honeys or honeydews, respectively' (Miguel *et al.*, 2009). The substitution of sweeteners by honey may result in enhanced antioxidant shielding system in healthy adults (ibid., 2009).

The last component to finish this dessert is lemon powder. Lemon is proven by Zhou *et al.*, (2017) to have protective effect against alcohol-induced liver disease. This hepatoprotective activity of lemon juice is further confirmed when the treatment test done by Zhou *et al.* show significant improvement to the liver's histopathological changes. The lemon will be dried using a dehydrator. Once it is dried, it will be crushed into powder form, to make it easier to consume with the dessert. The whole part of lemon will be used with no waste left behind, for the sake of maximizing the nutritional value a lemon has in it. Lario *et al.*, (2004) found that lemon powder produced from the by-products of lemon juice, which includes the rind and peel, has good microbial and functional quality, and is proven as a good source for high dietary fibre.

## **RESEARCH METHODOLOGY**

A research is done to gain new insights; to portray accurately the behavior of a particular group; to test a hypothesis of a causal relationship between variables; and to determine the frequency with which something occurs (Kothari, 2004). Research itself is also useful to solve a certain problem. This leads to the fact why market research, operations research, and motivational research is needed to make a business decision (*ibid.*, 2004).

### **Secondary Research**

Secondary research is 'the re-analysis of data for the purpose of answering the original research question with better statistical research and evaluation enterprise' (Glass, 1976, p. 3). Most research begins with a secondary data analysis such as literature survey, as it provides an opportunity to know what has been learned and what remains to be learned in a certain topic (Stewart and Kamins, 1993). Because primary research costs a lot of money, a proper secondary research may help save funds to make sure that the funds only goes to obtain new information (*ibid.* 1993).

The main purpose of a literature search is to focus a research from the wide context of topic (Ridley, 2012). Apart from that, it also helps to assist in determining the right approach and methodology to adopt in a particular research. More particularly, it helps to identify the type of data needed to be collected, sample size, and how to analyze it (*ibid.* 2012; Hart, 2018). However, a literature review is only useful if the source is valid. Ridley (2012) recommends using books, journal articles, published literature, and "grey literatures" (reports, theses, dissertations, *etc.*). Some official websites may be credible enough to be used as a reference but is not recommended as some may have open access editing of its pages.

The literature review done for this research is focused mainly to gain more knowledge on NFPD, the product ingredient's nutritional value, and current market situation. The focus was on key theories from Fuller (2011) and Earle *et al.*, (2001) to create the model of NFPD which is the fundamental of this research. The research on current market innovations and demand are based on mostly surveys done by Mintel (2017) and Nielsen (2015), to accurately have an image of what is trending and gaps in the market that can be penetrated with the newly developed product.

### **Primary Research**

A primary research, or industrial survey, is used in new product development to show how important the research is and how it contributes to the company's innovation (Kumar and Phrommathed, 2005). For this project, the primary research was conducted through mixed-method. According to McDonagh-Philp and Bruseberg (2000), qualitative method is the most effective way to dig into the detailed insights of people's

beliefs and experiences, rather than just statistics. However, qualitative research combined with quantitative research helps provide a more solid database for analysis (Anderson, 2008). Qualitative method relies on the researcher as an interviewer or observer in securing data, whereas quantitative method relies on the research instrument to gather and analyze (Clark *et al.*, 1998).

The data obtained will be assessed in triangulation method. Triangulation is derived from field of navigation which means determining an information from two known data of two or more method (Heale and Forbes, 2013). This combined with mixed methods are used because the result of data collection may be divergent due to response bias (ibid. 2013; Furnham, 1986). Triangulation receives criticism as it assumes the data obtained from two different method is equal in weight and comparable. Despite the criticism, triangulation is still considered as a way to process and understand the phenomenon under study more comprehensively (ibid. 2013).

NPD developers consider how to respond to consumers' needs. Consumers' needs are one of the main reasons that NPD happens, but there is no guarantee that the product developed is on par with the consumer's demand (McDonagh-Philp and Bruseberg, 2000). To overcome this, focus group discussions were developed to enable product developer interact directly with the potential users of the new product (ibid., 2000). Focus group discussions, falling in the qualitative research, 'involves a focus on specific issues, with a predetermined group of people, participating in an interactive discussion' (Hennink, 2013, p. 1). The people involved should be 6-8 people within the same background (McDonagh-Philp and Bruseberg, 2000). To be more specific, the author chose to have 8 people over 35 years old and reside in Switzerland. The reason is because they are qualified as this product's target market. Each member tasted and were asked questions to help assess the product.

To support the FGD, a web questionnaire based on the product analysis and consumer preferences was designed. The questions were categorized into semantic differential scale, multiple choice, checkboxes, and open-ended questions. As mentioned above, this questionnaire was designed to ensure the data obtained from the focus group discussion was valid, as the existence of the author during the FGD, the lack of time, or others opinion may influence the answers given by the participants (Brace, 2008). The questionnaire was sent individually, and the result could then be analyzed and compared.

### **Sampling**

Any form of research requires data to be collected, whether it is from a census or just from sample. Sample are a group of people chosen from the target population (Taherdoost, 2016). Sampling technique is required as it lessen the number of data collected by obtaining from subgroup instead of the whole group of subjects (Saunders *et al.*, 2012). The technique used in this research is the purposeful technique. Purposeful sampling is commonly used in qualitative method for 'the identification and selection of information-rich cases related to the phenomenon of interest.' (Palinkas *et al.*, 2013, p. 533). The author has identified and chosen 9 generation X as the sample for this research, as they are part of the author's target market. Another method used to help with the market research is the snowball sampling technique. Snowball sampling is sometimes included in purposive sampling but it differs as purposive sampling doesn't always use the source of participant as a participant (Tongco, 2007). Snowball sampling is where the participant is asked to recommend or give the questionnaire to someone else with the same background (ibid., 2007). This is done to ensure the participants



joining this study is all generation X. The author asked generation X participants to recommend the questionnaire to their significant others and friends.

### **Pilot Study (Trial)**

Pilot study, or pilot test is the phase of testing something to refine it and ensure that it won't have problem when presented to the intended audience (Saunders *et al.*, 2012). It is required to do a pilot testing in product development, as it is useful for measure whether the product is fitting for the demand (Frankiewicz, 2008). Many critics were made about pilot study as some deemed it as costly and unnecessary, but it actually reduces costs as the loss is in small scale which is experimented (ibid., 2008).

As for this research, several pilot tests were done to further improve the product. The original idea of making the droplet cake with blended aloe vera were changed into cubes of aloe vera instead due to the slimy consistency of the aloe vera that is not pleasant in the mouth when evaluated by the author. Some designs for the plating were also changed due to the limitation of equipment.

## **Ethics in Research**

Qualitative research is a field that involves contact with human subjects, thus ethical issues are considered inevitable in this case (Silverman, 2013). Kothari (2004) said the criteria for a good research should be clear, objective, frank, and the validity should be checked. Better confidence is warranted if the researcher takes pride in their integrity. This research is double-checked by consulting to supervisor regularly, to ensure that it is up to standard and well-written. The data collection, be it primary or secondary research, are also guided by the supervisor to ensure its validity (Appendix 8). To help assert the ethics in this research, the author attached a checklist by Saunders *et al.*, (2012) in the appendix, that is able to help anticipate and deal with ethical issues that may emerge.

## **EVALUATION AND REFLECTION**

### **NFPD Process**

To ensure the process runs in the most effective way, production plan is necessary as it ‘decides the use of production resources in order to satisfy forecast demand over a certain planning horizon at a reasonable cost’ (Gelders and Van Wassenhove, 1981, p. 101). Because selection of product concepts in NPD are mostly based on the metrics like cost and time (Relich and Pawlewski, 2018), it is crucial to have the cost of the product controlled. To attend to this matter, the author has included the standard recipe for Heloe Dessert, which contains the detailed costing and portioning size. The pricing was based on the 30% food cost, considering the direct labor and direct expenses. The standard recipe itself has been justified to ensure each individual can recreate the product with minimal food waste.

### **NFPD Review – Primary Research Projection**

Before starting trial and production, the author wanted to make sure that the product developed had the proper target in the market. Other than relying on secondary research of national and international report journals, the author created a web questionnaire (Appendix 2) to establish a firm base to validate a market demand for the newly developed product. The questionnaire was spread through purposive and snowball sampling in a span of a week. From 41 generation X respondents who resided in Europe, 68.3% of them were interested in desserts that contribute to their health. Their major concerns are weight and obesity (65.9%), followed with high cholesterol level (36.6%), and body toxin (31.7%). As expected, none of them depicted desserts as a healthy food, and most of them has never consumed a healthy dessert other than a fruit platter or fruit salad, which is not a dessert. Thus, the product can be considered as nice.

To secure a stronger place in the market for the product, a focus group attended by 9 people was held. The participants consisted of 55.6% females and 44.4% males. This demographic shows that the author is objective in the sampling process and therefore established a fair focus group with differing individuals. There was discrepancy between the response given during interview and in the questionnaire result. This was foreseen beforehand, and was overcome by having two data collection method and triangulation of data. The discrepancies are as illustrated below (Table 4.2)

**Table 4.2 Discrepancy between FGD feedback and Questionnaire result**

<b>Aspect</b>	<b>Focus Group Comments</b>	<b>Questionnaire</b>
Flavor	“It tastes really nice”	55.6% least favored aspect

	“I like how it is light in taste”	
Visual	“This is so instagrammable” “It’s so playful it makes me feel like a child”	88.9% Very appealing 77.8% Favorite aspect
Aroma	“It smells fresh” “The lemon smell is very strong”	44.4% Attracting 22.2% Very attracting
Mouthfeel	“The texture is very nice, unlike usual hard pudding that crumbles and tastes powdery” “There’s a good crunch from the lemon powder”	33.3% Good 33.3% Neutral
Quality	“It tastes fresh, the herbs are very fragrant”	66.7% Good 33.3% Very good
Portion	“It is nice, it is well portioned” “It is perfect because it is not adding to the already full stomach”	77.8% Very reasonable

During the focus group, participants stated that they enjoyed the flavor of the product. The questionnaire, however, yielded different results. The questionnaire indicated that the flavor was the least favored aspect of the product with 55.6%. The visual received praises both in the focus group as well as in the questionnaire as it was the most favorite aspect of the product with 77.8% vote. The author also found contradiction in the data collected as the majority of vote for taste of the droplet and lemon powder by its own is mostly pleasant and very pleasant, which contradicts with the end rating of flavor as the aspect least favored.

In terms of quality, regarding the consumer knowledge of the product, 33.3% participant considered the ingredients quality as great, whereas 66.7% considered it good. Because the method of cooking the product is very simple, the author relies on fresh produce to ensure the flavor of each component stands out. However, to make the product itself needs quite some time to let the droplet harden, and this may cause the perception of not freshly made product to some participants.

To fulfill the sensory evaluation of the product, the questionnaire also includes rating on aroma and mouthfeel. The aroma of the product is very attracting to the consumer. This may be caused by the dried lemon powder which were made from the whole of lemon parts. The zest in lemons contributes to the citrus aroma of the dessert, which is very refreshing. Contrary to the pleasing aroma, the mouthfeel is not very well-received as most of the participants are fair-minded about it.

**Table 4.3 – Cross tabulation between gender and mouthfeel**

Gender	Mean	Standard Deviation
Male	3.25	0.96
Female	4.00	1

As can be seen (Table 4.3), the male participants did not rate the mouthfeel of the dessert as much as the female participants. Most of the male participants in the end



### **Figure 4.2 Standard recipe card and costing for lemon powder**

Without the author mentioning the cost or the planned selling price of the product, majority of the participants were willing to pay CHF 14 – CHF 17 for a plate in a fine dining restaurant. With the actual production cost of CHF 6.27 for each portion, there should be an adjustment on the costing department, as the usual food cost percentage is 30%. This shows that the real value of the product was not delivered properly to the consumer as a product's value justifies the price. It is possible to find some replacement ingredients for the product such as using packaged dried fruits. However, it may affect the quality of the product and the nutritional value, which is the unique selling point of the product. Nonetheless, the positive reaction, feedback during focus group, and statistical analysis of the responses proves that the focus group discussion and the new food product developed was successful.

#### **Secondary Research Extrapolation - NFPD Theory**

To conduct this research, the author conducted secondary research related to NFPD theories to develop the newly proposed NFPD framework. The main framework used for comparison and understanding was Fuller (2011) and Earle *et al.*, (2001). The author decided to propose a new framework because while investigating the two different frameworks, the author finds that some restructuring is needed, while there are also some stages that are unnecessary in this research.

The theory suggests that creativity gives birth to idea generation, which will be the root of a new innovation. However, the author disagrees with that because idea is the fruit of researching. The gap of market demand and product availability produce idea which is then supported by creativity to go into innovation and developed into a business. Because the market research conducted did not reach enough participants, it is supported with trends reports from survey companies like Mintel and Nielsen. After the initial first two stages, the development stage is decided as a stage that may cycle back because some ideas may not be realistic with today's technology or founding, thus it has to go through screening. Each and every idea is evaluated personally by the developer in terms of sensory, to ensure it reaches or exceed the initial expectation.

#### **Methodology**

After reviewing both the NFPD process and results collected from primary method, the author finds the approach of methodology to this research was well executed. The pre-production survey was very helpful for backing up the reports found about the current market trend and demand. In hindsight, it is better if the survey reached at least 50 respondents to reinforce the data collected. In the literature, the method of collecting resources are deemed to be effective. Even though there are some elements that is lacking in references and created confusion, some adjustments were made by consulting and referring to other NPD researches. The product characteristics in the semantic differential scale could have been improved with a more detailed explanation in each scale, therefore creating a more specific result instead of generalized answers.

Overall, the author believes this research has achieved the aim of study. Even though the product is not market-ready, the main objective has been obtained. This study has been a journey that helped the author refine researching skills, enhance moderating capabilities, and challenge critical thinking skills which indirectly push the creativity limits.

#### **Conclusion**

In conclusion, the process of developing the product "Heloe Dessert" was a success, considering the result met the original vision. A critical literature study on NPD

theories and related topics has resulted in a framework that guided this research to reach its end goal. The various methods of primary research are also crucial in the success of this research, as it simulated the market's response to the product. By using purposive sampling technique, it allows the author to reach certain participant group that is identified as the product's main target market. After analyzing the data, the product still needs some adjustments but is filling the gap of demand for healthy indulgence in Europe. The feedback received will be assisting the future adjustment to ensure the product is launchable and able to secure competitive advantage in the market. Thorough reflection has been done by the author throughout the whole NFPD process and has given the author better understanding on the mechanism of a successful NFPD process.

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