Written Activity One

10 Quick Questions

Read the online text at this link: https://foodstudies.com.au/courses/unit-2-1-7-2-1-8-developing-new-food-products-and-evaluating-foods/

Answer these questions:

1. What is a design brief?

   A design brief is a document that outlines the requirements and specifications for a new product or service. It describes what needs to be made, why it is needed, who it is for, when and where it will be made, and what resources are available.

2. Why is it important to identify the target audience in a design brief?

   Identifying the target audience helps in designing a product that meets their specific needs and interests. It ensures that the product will be appealing and relevant to the intended consumers.

3. What are the two types of specifications in a design brief?

   The two types of specifications are constraints and considerations. Constraints are requirements that must be met in the new product, while considerations are optional features or characteristics that could be included.

4. What is the purpose of conducting primary research in the design process?

   Primary research involves collecting information directly from the target audience or market. It helps designers understand what people want and gather feedback on their attitudes, beliefs, opinions, and perceptions about a food product or service.

5. What is the difference between primary research and secondary research?

   Primary research involves collecting new data directly from the source, while secondary research refers to using existing information and sources that have already been published or reported by others.

6. What is the role of prototypes in the design process?

   Prototypes are sample versions of the proposed product that are developed for testing and evaluation purposes. They help assess various aspects such as sensory properties, equipment suitability, compliance with regulations, and cost considerations.

7. What is a sensory analysis?

Sensory analysis is a scientific discipline that uses the five senses (sight, smell, taste, touch, and sound) to evaluate the sensory properties of a food product. It helps determine its appeal to consumers and assesses factors like appearance, aroma, flavour, texture, and sound.

8. How does marketing contribute to the success of a new food product?

Marketing plays a crucial role in promoting and selling a food product. It involves highlighting its unique features, generating consumer awareness, and fulfilling customer needs and wants. Effective marketing ensures that the product reaches its target market and drives sales.

9. What are preference tests and discrimination tests in sensory evaluation?

Preference tests are used to determine differences in preference between food samples, while discrimination tests aim to detect differences or similarities between samples based on specific characteristics like texture or sweetness.

10. What is the difference between qualitative and quantitative evaluations in sensory analysis?

Qualitative evaluations are subjective and based on personal feelings or opinions, while quantitative evaluations are objective and based on measurable data. Descriptive analysis, where trained panellists measure attributes using a rating scale, is an example of a quantitative evaluation.

Written Activity Two

CSIRO: Welcome to our food innovation centre

Watch the video at this link:

1. What does CSIRO stand for?

   Commonwealth Scientific and Industrial Research Organisation

2. What role does CSIRO play in designing new food products?

   CSIRO works with the food and beverage manufacturing industry to create next-generation value-added food products and ingredients, adopting new technologies, and developing applications for safer, fresher, healthier, and sustainably produced foods.

3. How does CSIRO assist companies in innovating their food products?

   CSIRO helps companies innovate by improving operating efficiencies, licensing ready-to-go technologies, making industry connections, and collaborating on breakthrough technologies.

4. In terms of sales, what impact has CSIRO had on its clients in the food industry?

   In the last few years, CSIRO has helped its clients generate hundreds of millions of dollars in new food product and ingredient sales both locally and in export markets.

5. How many new products has CSIRO assisted in introducing to the retail market nationally?

   CSIRO has helped introduce more than 25 new products to the retail market nationally.

6. How does CSIRO support companies in developing and launching new food products?

   Companies are invited to use CSIRO's manufacturing equipment to develop and launch new products into the market, or they can strategically collaborate with CSIRO on breakthrough technologies.

7. What makes CSIRO's pilot plants unique?

   CSIRO's pilot plants are unique facilities that combine conventional and emerging technologies, supported by world-class science.

8. What areas of expertise does CSIRO offer to food companies?

   CSIRO has expertise in sensory, flavour, consumer science, and food choices, which helps companies develop new or redefine existing products.

9. How does CSIRO assist the food industry in managing food safety and meeting regulations?

CSIRO helps the industry manage food safety and product shelf life while ensuring compliance with food safety regulations in export markets.

10. How does CSIRO support companies in developing healthier food options?

CSIRO's researchers assist companies in reformulating their products to reduce salt, sugar, and fat while developing fortified products with functional health benefits that still meet consumer taste preferences.

Written Activity Three

Designing a Food Product

Imagine you are a food designer tasked with creating a new a new food product marketed to 16 year olds.

Use the information from the design process to complete the following activity:

1. **Develop a design brief for a new food product aimed at 16-year-olds.**

   Consider the following aspects:

   - What needs to be made? Describe the type of food product you will create.
   - Why is the food product needed? Provide background information and specify any unique features or priorities.
   - Who will the food product be aimed at? Describe the target audience and their particular interests.
   - Where and when will the food be eaten? Provide details about the intended consumption occasions.
   - How will the food product be made? Consider the equipment, ingredients, and technology available for production.

2. **Specifications:**
   - Refer to the design brief to identify at least two constraints and two considerations for your food product.
   - Formulate open-ended questions based on these specifications to be used as part of the evaluation process.

3. **Research:**
   - Outline the primary and secondary research you would conduct to gather information about the target audience, market trends, and potential ingredients or flavours.

4. **Design and Innovations:**
   - Brainstorm and describe two innovative changes or improvements you would like to incorporate into your food product, such as using unique technology or introducing eco-friendly packaging.

5. **Product Testing:**
   - Outline the steps you would take to conduct product testing for your food product, including developing prototypes and evaluating sensory properties, consistency, and shelf-life.

6. **Marketing:**
   - Briefly describe three marketing techniques you would use to promote your food product to the target audience.

7. **Qualitative Evaluations:**
   - Explain two different types of qualitative evaluations that could be conducted to assess the quality and sensory properties of your food product.

8. **Quantitative Evaluations:**
   - Identify two quantitative evaluations that could be used to measure specific attributes or characteristics of your food product, such as color or viscosity.

Written Activity Four

Big Industry

Source: https://finefoodaustralia.com.au/fine-food-australia-news/big-industry-turn-out-for-fine-food-australia-2022-as-australias-top-innovations-products-and-industry-stars-shine/

Extract:

One of the highlights was the annual Innovation Awards which recognise the most exciting and innovative products in the Australian marketplace, judged by top food industry experts.

“The calibre of entrants this year for the Innovation Awards was incredible,” said Product and Event Manager, Andrew Lawson. “All the nominees were phenomenal but what really set the winners apart were products that were very unique displaying a high level of innovation.”

Best new food service product, presented by Hello Food Service: Clorox Australia – Glad to be Green Compostable Baking Paper. Comprised of a unique composition of materials, as opposed to regular baking paper which has a high amount of silicone, Clorox’s product is a win for sustainability says Commercial Manager McLean Bennett. “It is costly to make but we believe in economies of scale and the environment, so we are thrilled at how it’s performed over 12 months.”

Best new retail product, presented by Retail World: Mama Emma – Gluten Free Potato Gnocchi with Pea Flour. About to launch on the Australian market through distributor Raw Materials, Marketing Manager Alberto Bianco said, “the product is different to other gnocchi products in that it is made from 68 per cent steamed potatoes unlike others which are made from potato flakes. The result is a superior product.”

1. Select one of the new food products described above and develop a design brief that could have been used in the development of this food product.

   The objective of this project is to create and launch a Gnocchi. It needs to be a high-quality, innovative, and marketable food product that caters to consumers with gluten intolerance or preference for gluten-free options. The product should offer a superior taste, texture, and nutritional profile compared to traditional gnocchi. The development process should prioritise maximizing the product's nutritional profile while maintaining a gluten-free status and incorporating sustainable ingredients and manufacturing practices. The target market for the product health-conscious individuals who follow a gluten-free diet, including those with gluten intolerance, celiac disease, or those who choose gluten-free options for dietary or lifestyle reasons. The product should also appeal to consumers seeking innovative and flavourful alternatives to traditional gnocchi.

2. How does Clorox Australia's "Glad to be Green Compostable Baking Paper" exemplify innovation in the food service industry?

   Clorox Australia's "Glad to be Green Compostable Baking Paper" exemplifies innovation in the food service industry by offering a unique composition of materials that sets it apart from regular baking paper. This innovative product is designed to be compostable, unlike traditional baking paper which contains a high amount of silicone. By utilizing a different composition, Clorox's baking paper demonstrates a high level of innovation in providing a sustainable alternative for the food service industry.

3. Explain the unique composition of materials in Clorox Australia's compostable baking paper and how it contributes to sustainability.

   The unique composition of materials in Clorox Australia's compostable baking paper is specifically designed to contribute to sustainability. Unlike regular baking paper, which contains a high amount of silicone, Clorox's baking paper is made from a distinct combination of materials. While the specific composition is not mentioned in the article, it is stated that the product is comprised of materials different from those used in traditional baking paper. This unique composition allows the baking paper to be compostable, promoting environmental sustainability by reducing waste and avoiding the use of non-biodegradable materials.

4. In what ways does Mama Emma's "Gluten Free Potato Gnocchi with Pea Flour" differ from other gnocchi products on the market?

Mama Emma's "Gluten Free Potato Gnocchi with Pea Flour" differs from other gnocchi products on the market in several ways. First, it is made from 68% steamed potatoes, unlike other gnocchi products that are typically made from potato flakes. This use of steamed potatoes contributes to the superior quality of Mama Emma's gnocchi, offering a different texture and flavor profile compared to gnocchi made from potato flakes. Additionally, the inclusion of pea flour in the product's recipe sets it apart, providing a gluten-free option for consumers who have dietary restrictions or preferences.

5. What are some qualitative measurements that can be used to compare and evaluate the gnocchi?

Hedonic rating scales

Taste testings

Surveys and questionnaires

Interviews

6. Provide examples of quantitative measurements that can be used to compare and evaluate the gnocchi.

Nutritional content: Comparing the nutritional profiles of different gnocchi products, such as the amount of protein, carbohydrates, fats, and dietary fiber per serving.
Cost: Analysing the price differences between the compostable baking paper and regular baking paper to evaluate the cost-effectiveness of the sustainable option.

Cooking time: Measuring the time required to cook Mama Emma's gluten-free gnocchi compared to other gnocchi products.

Summary Activity

What is the main idea about this key knowledge and key skills?
Write two or three sentences in your own words. The key knowledge explains the sequential process of developing new food products using design briefs and the evaluation methods, including sensory, dietary, and nutrition analysis, to ensure product quality and success. The main idea of this key knowledge is the use of qualitative and quantitative measures for evaluating foods. It emphasises the principles and practices of sensory evaluation, which involves assessing the sensory properties of food products using the five senses. It also highlights the importance of dietary analysis and nutrition analysis in evaluating the nutritional content and quality of foods.
Outline what a design brief is and why it is important to use one when developing a new food product.
A design brief is a document developed in consultation with a client that outlines the type of food product they want to create. It provides information on what needs to be made, the purpose or need for the food product, the target audience, the intended consumption context, and the available resources for production. Using a design brief is important in developing a new food product because it sets clear goals and guidelines, ensuring that the product meets the client's requirements and aligns with their priorities. It serves as a roadmap for the development process, helping to minimise wasted time and resources by focusing efforts on creating a product that fulfills the specified criteria.
Explain the concept of considerations and constraints. Outline how they differ.
Considerations and constraints are two types of specifications that are identified within a design brief. Considerations refer to aspects that a new food product could include, but they are not mandatory requirements. These considerations are desirable features that could enhance the product's appeal or meet specific market demands. They provide opportunities for creativity and innovation in the product development process. Constraints, on the other hand, are mandatory requirements that must be included in the new product. They set limitations or boundaries based on factors such as safety regulations, nutritional guidelines, or production capabilities. Constraints ensure that the product meets certain standards and complies with necessary regulations.
Suggest ways in which food product designers come up with ideas for new products.
Food product designers generate ideas for new products through various methods: Primary research: They collect information directly from the target audience or market through techniques like interviews, questionnaires, surveys, and focus groups. This helps them understand consumer preferences, needs, and desires. Secondary research: Designers refer to existing content, such as articles, books, and credible online sources, to gain knowledge about ingredients, trends, consumer behaviors, and market insights. This research helps in identifying gaps or opportunities for new product development. Innovation and creativity: Designers explore new ideas and concepts by combining existing knowledge, trends, and emerging technologies. They may experiment with different ingredients, production techniques, flavours, or packaging to create unique and innovative food products.

Summarise the purpose of developing a prototype.

The purpose of developing a prototype is to test and evaluate the new food product before full-scale production. Prototypes serve several functions:

Prototypes allow for assessing the aroma, appearance, taste, and texture of the potential product. Feedback from sensory evaluations helps in refining and modifying these attributes.

Prototypes help evaluate the suitability of available equipment, ingredients, and resources for production. This assessment ensures that the new food product can be effectively and efficiently manufactured.

Prototypes are used to ensure that the food product meets safety and nutritional government policies, regulations, and standards.

: Prototypes allow the company to verify and validate the accuracy of claims made about the product. This includes claims related to nutritional content, health benefits, or other marketing claims.

Prototypes help in determining the stability and shelf-life of the food product, ensuring it remains safe and of acceptable quality for a desired duration.

The cost of the food product can be determined during prototype development, enabling adjustments in the design to ensure it aligns with the desired budget.

List the different types of evaluations that can be conducted and explain their purpose.

Different types of evaluations can be conducted in the design process of a new food product:

Sensory analysis: This evaluation assesses the sensory properties of the food product, including appearance, aroma, taste, texture, and sound. It helps determine if the product is appealing to consumers and meets their expectations.

Dietary analysis: Dietary analysis involves analyzing the consumption patterns of individuals or groups to determine the nutritional quality and quantity of their diet. It compares the energy and nutrient data with established food composition tables or reference values to assess nutritional adequacy.

Nutrition analysis: Nutrition analysis focuses on determining the specific nutritional content of a food product. It involves laboratory testing and analysis to measure macronutrients, micronutrients, vitamins, minerals, and other components. This analysis is essential for developing accurate nutritional information panels on food packaging and supporting nutritional claims made by food manufacturers.

List each stage of the design process for a new food product and outline what occurs in each stage.

The stages of the design process for a new food product are as follows:

Research: Conducting primary and secondary research to understand consumer preferences, market trends, and technical aspects related to the product.

Design and innovations: Developing innovative ideas and concepts based on the research findings and market demands, incorporating new technologies and improvements to existing products.

Product testing: Evaluating the characteristics and performance of the food product through sensory analysis and prototype development. Gathering feedback from potential customers.

Production: Scaling up the production process and ensuring consistency in quality and performance from small-scale to large-scale production.

Product evaluation: Assessing whether the food product meets the specifications outlined in the design brief. Conducting various evaluations, such as sensory analysis, dietary analysis, and nutrition analysis.

Marketing: Promoting and marketing the food product to generate sales and fulfill customer needs. Utilizing various marketing techniques and strategies to create awareness and demand for the product.

Exam Preparation

Multiple-Choice Questions (5 marks)

Choose the response that is correct or that **best answers** the question.

1. A design brief is important because:
   a. It tells food product designers what food product they should design.
   b. It gives food product designers information to consider when designing a new food product.
   c. It provides essential information to the food consumer about the new food product.
   d. All of the above.
2. It is important to conduct sensory analysis on a food prototype before advancing a prototype to full-scale production because it gives information to the food manufacturer about:
   a. How much a consumer is willing to spend on the product.
   b. Where the consumer is likely to purchase the product.
   c. Whether or not the consumer likes the texture of the product.
   d. The suitability of the equipment currently available to produce the product.
3. If a new food product satisfies the constraints and considerations of the design brief, that means that the new food product:
   a. Will be profitable for the food business.
   b. Won't be profitable for the food business.
   c. Is more likely to be profitable for the food business.
   d. Will remain a permanent product produced by the food business.
4. The considerations in a design brief:
   a. Must be followed to meet the requirements for the new product.
   b. Considerations are not part of a design brief.
   c. Are more likely to contribute to the success of the product if they are followed.
   d. All of the above.
5. During a food product evaluation, the following aspects of the design process are considered:
   a. The product and the packaging.
   b. The production of the product.
   c. The marketing of the product.
   d. All of the above.

Short Answer Questions (15 marks)

Question 1 (2 marks)

Read the design brief below and answer the questions that follow:

Our client, Rise 'n' Go Food Company, is seeking to develop a new food product that specifically targets teenagers as a convenient grab-and-go option for breakfast. The grab-and-go breakfast food product will be primarily consumed by teenagers during their morning routines, either on the way to school or during time-constrained mornings. The product should be easy to eat, mess-free, and suitable for on-the-go consumption. The food product must comply with nutritional guidelines for adolescent health, including specific criteria for energy content, macronutrient distribution, and micronutrient requirements. The product must be free from common allergens, such as peanuts, tree nuts, dairy, and gluten, to ensure broader accessibility and safety for teenagers with dietary restrictions or allergies. The product should offer a range of appealing flavors that resonate with the taste preferences of teenagers, providing a delicious and enjoyable breakfast experience.

In the table below, identify one constraint and one consideration in the design brief provided. 6 marks

Constraints	Considerations
Any of the following constraints were accepted: • The food product must target teenagers as the primary consumer group. • The product must comply with nutritional guidelines for adolescent health. • Specific criteria for energy content, macronutrient distribution, and micronutrient requirements need to be met. • The product must be free from common allergens (peanuts, tree nuts, dairy, gluten).	Any of the following consisderations were accepted: • The food product should cater to teenagers' morning routines, including on-the-way-to-school or time-constrained mornings. • It should be suitable for on-the-go consumption. • The product should offer a range of appealing flavors. • Flavors should align with the taste preferences of teenagers. • It should provide a delicious and enjoyable breakfast experience. It should be easy to eat and mess-free.

Question 2 (2 marks)

Explain the purpose of a design brief in the process of developing new food products.

For two marks, the student needed to identify one purpose of a design brief in detail or two purposes in less detail. The design brief outlines the specifications and requirements for a new food product, including what needs to be made, why it is needed, the target audience, consumption context, and available resources.

Question 3 (3 marks)

Define the term 'primary research' and provide one example.

For two marks, the student needed to explain what primary research is. Primary research refers to the process of collecting and gathering firsthand information directly from the source or target audience. For one mark, the student needed to provide an example of primary research. Any of the following examples were accepted:

Conducting interviews, questionnaires, surveys, and focus groups.

Question 4 (4 marks)

Discuss the importance of product testing in the development of new food products.

For four marks, the student needed to discuss two reasons why product testing is important when developing new food products.

Some sample answer are provided below:

- Product testing allows for the measurement of a food product's characteristics and performance against the specifications in the design brief.
- It includes gathering feedback from customers, developing prototypes, and assessing factors like sensory properties, equipment suitability, safety compliance, shelf-life, and cost.

Question 5 (4 marks)

a. Outline the difference between a dietary analysis and nutritional analysis. (2 marks)

For two marks, the student needed to highlight 1 similarities and/or differences between a dietary and nutritional analysis.

The student should use a word such as whereas when making comparisons.

Dietary analysis focuses on evaluating an individual or group's food consumption patterns and comparing them to nutritional guidelines, whereas a nutritional analysis determines the specific nutritional content of a food or range of products, supporting nutritional claims and providing information to consumers.

b. List a type of a dietary analysis and a nutritional analysis. (2 marks)

For two marks, the student needed to provide an example

Dietary Analysis:

Food Frequency Questionnaire: A survey-based method that assesses the frequency of consumption of various foods and beverages over a specific period.

24-Hour Dietary Recall: A method where an individual recalls and describes all the food and beverages consumed within the past 24 hours.

Diet History: Collecting detailed information about an individual's dietary habits, food preferences, cooking methods, and eating patterns over a longer period, usually several months or years.

Diet Records or Food Diaries: Keeping a daily record of all foods and beverages consumed, including portion sizes and preparation methods. It provides a comprehensive view of an individual's dietary intake.

Nutritional Analysis:

Nutrient Composition Tables: Utilising food composition databases or tables to determine the nutritional content.

Laboratory Analysis: Conducting laboratory tests to measure the nutrient composition of food samples.

Nutrient Calculation Software: Utilising specialised software or online tools that allow users to enter food items or recipes to generate detailed nutritional analyses.

Recipe Analysis: Evaluating the nutritional composition of recipes by calculating the nutrient content per serving or per 100 grams.

Nutritional Label Analysis: Examining the nutrition facts labels on packaged food products to assess their nutrient content.