

Review Article

What Makes 'Healthful Food' vs. A 'Food Healthful': Using AI to Coach People to Ask Good Questions

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Abstract

This paper addresses the emerging opportunity to learn how to ask better questions, and think critically using an AI based tool, Idea Coach. The tool allows the user to define the topic, as well as specify the nature of the question through an easy-to-use interface (www.BimiLeap.com). The tool permits the user to change the topic slightly and discover the changes in the questions which then emerge. Idea Coach provides sets of 15 topic questions per iteration, along with summarizing the themes inherent in the questions, and suggests innovations based on the questions. The paper illustrates the output of the Idea Coach for four similar phrases describing food: Healthful food; Healthy Food; Good for Health; Health Food, respectively. The output, produced in a matter of minutes, provides the user with a Socratic-type tutor to teach concepts and drive research efforts.

Introduction-thinking Critically and the Importance of Asking Good Questions

A look through the literature of critical thinking reveals an increasing recognition of its importance, as well as alternative ways of how to achieve it [1,2]. It should not come as a surprise that educators are concerned about the seeming diminution of critical thinking [3,4]. Some of that diminution can be traced to the sheer attractiveness of the small screen, the personal phone or laptop, which can provide hours of entertainment. Some of the problem may be due to the effort to have people score well on standardized tests, a problem that the late Professor Banesh Hoffmann of Queens College recognized six decades ago in his pathbreaking book, *The Tyranny of Testing*, first published in the early 1960's [5].

That was then, the past. Given today's technology, the ability to tap into AI, artificial intelligence, the availability of information at one's fingertips, the ability to scan hordes of documents on the internet, what are the next steps? And can the next steps be created so that they can serve the purposes of serious inquiry, e.g., social policy on the one hand, science on the other, designed for students as well as for senior users? When the next steps can be used by students, they end up generating a qualitative improvement in education.

Previous papers in this 'series', papers appearing in various journals, have presented a systematized approach to 'understanding' how people think. The approach, originally called IdeaMap and then RDE (Rule Developing Experimentation), and now finally Mind Genomics, focused on creating a framework which required users to create four questions, each with four answers [6]. The actual

process was to have the user create a study name, come up with the four 'questions which tell a story', and then for each question come up with four stand-alone-answers, phrases. The actual process was to mix these standard alone answers (called elements), present the combinations of answers (vignettes), instruct the respondent (survey participant) to rate the vignette on a defined rating scale, one vignette at a time, and then analyze the data to link the elements to the ratings. Figure 1 shows the process.

This exercise, introduced thirty years ago in the early version called IdeaMap® ended up revealing the difficulties experienced with asking good questions. The users of IdeaMap® comprised professionals at market research companies scattered around the world. These users were familiar with surveys, had no problems asking questions, but needed 'coaching' on creating questions which 'told a story'.

As IdeaMap® grew, it became increasingly obvious that many users wanted to create a version of surveys. Users were comfortable with surveys. The requirement for a survey was to identify the different key areas of a topic and instruct the survey-taker to rate each topic using a set of questions prepared by the user. Expertise was demonstrated in the topics that the user selected, the instructions to the survey taker, and occasionally in the analysis. The user who discovered a new subtopic, e.g., one corresponding to a trend, could make an impression simply by surveying that new topic. Others prided themselves on the ability to run surveys which were demonstrably of lower bias and bias-free, or at least pontificated on the need to reduce bias. Still others were able to show different types of scales, and often times novel types of analyses of the results [7]. What was missing, however, was a deeper way to think about the problem, one which provided a new level of understanding.

CREATE A STUDY

First, give your study a name

healthfood

Select the language your study will be in

English

Don't see your language? [Contact us.](#)

I agree not to ask not accept information of a personal nature that could be used to identify the specific respondent.

A

HEALTHFOOD

For your study, please choose four questions which tell a story.

Idea Coach

Question 1*

Question 2*

Question 3*

Question 4*

B

Figure 1: The first steps in the Mind Genomics process. Panel A shows the creation of a study, including the name. Panel B shows the request for four questions which 'tell a story'.

The Contribution, or Rather the 'Nudge' Generated by the User Experience in Mind Genomics

The first task of the researcher after setting up the study is to create the four questions (Figure 1). It is at this step that many researchers become dismayed, distressed, and demotivated. Our education teaches us to answer questions. Standardized scores are based on the performance, viz., right versus wrong. There is the implicit bias that progress is measured by the number of right answers. The motto '*no child left behind*' often points to the implicit success of children on these standardized tests. There is no such similar statement such as 'all children will think critically.' And, most likely were that to be a motto, it would be laughed at, and perhaps prosecuted because it points to the inequality of point. We don't think of teaching children to think critically as being a major criterion for advancing them into their education.

The introduction of Mind Genomics into the world of research and then into the world of education by working with young children revealed the very simplicity of teaching critical thinking, albeit in a way which was experiential and adult oriented [6]. Early work with very bright students showed that a few of them could understand how to provide ideas for Mind Genomics, and with coaching could even develop new ideas such as the reasons for WWI or what it was like to be a teenagers in the days of ancient Greece. These efforts, difficult as they were, revealed that with coaching and with a motivated young person one could get the person to think in terms of sequence of topics which related a story.

It was clear from a variety of studies that there was a connection between the ability to use the Mind Genomics platform and the ability to think. Those who were able to come up with a set of questions and then four answers to each question seemed to be quite smart. There were also students who were known to be 'smart' in their everyday work, but who were experiencing one or another difficulty while trying to come up with ideas. These frustrated respondents did not push forward with the study. Indeed, many of the putative users of

Mind Genomics gave up in frustration, simply abandoning the process. Often they requested that the Mind Genomics process should provide them with the four questions. The answers were never an issue with these individuals, only the questions.

The response to the request for questions ended up being filled by the widespread introduction of affordable and usable AI, in the form of Chat GPT [8]. The inspiration came from the realization that were the questions to be presented to Chat GPT in a standardized form, with the user able to add individuating verbiage it might well be possible to create a 'tutor' which could help the user. And so was born Idea Coach, in the early months of 2023, shortly after the widely heralded introduction of Chat GPT to what turned out to be a wildly receptive audience of users.

The early approach of Idea Coach was to allow the user to type in the request for questions, at which point the Idea Coach would return with 30 questions. The sheer volume of putative questions was soon overwhelming, an embarrassment of riches. It was impossible for the user to read the questions and make a selection. Eventually the system was fixed to generate 15 questions rather than 30, to record the questions for later presentation to the user, to allow the user to select questions and re-rerun the effort, or even to edit the questions. Figure 2 shows an example of the request to the Idea Coach, and the return of a set of questions, along with the hance to select 1-4, or to rerun or to edit the requests and rerun.

The ultimate use of the Idea Coach turned out to be a massive simplification in the use of the Mind Genomics program, BimiLeap (Big Mind Learning App), along with the welcome acceptance by school age students who found it easy, and 'fun' [9-11]. The effort to create the Idea Coach along with mentoring the young students make it possible for them to do studies, at first guided, and then later on their own. Later on, the Idea Coach would end up providing answers to the questions, with the AI provided the text to the AI in the form of the actual question.

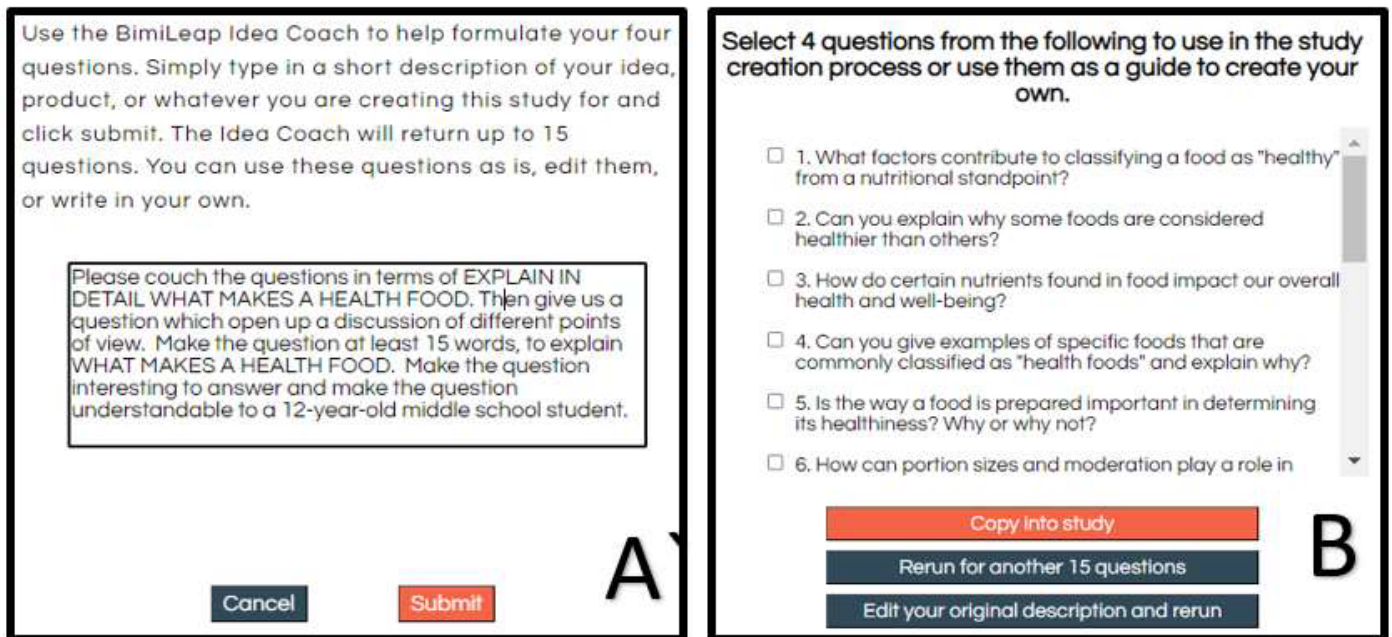


Figure 2: Screen shots showing the location where the user types in the 'squib', viz the prompt (Panel A), and some questions which emerge from an iteration using that prompt.

Moving Beyond the Research Process into What Idea Coach Actually Can Contribute

The initial experiences with Idea Coach were confined to setting up the raw material for the Mind Genomics process, namely the specification of the four questions, and then for each question the specification of the four answers. The earliest inkling of the power of Idea Coach to help critical thinking emerged from meetings with two young researchers, both of school age. It was during the effort to set up studies that they asked to run the Idea Coach several times. It was watching their faces which revealed the emerging opportunity. Rather than focusing on the 'task', these young school children seemed to enjoy reading the answers, at least for two, sometimes three iterations. They would read the answers and then press re-run, just to see what changed, what new ideas. It was then that the notion of using Idea Coach as a Socratic tutor emerged, a tutor which would create a book of questions about a topic.

Not every user was interested in using the Idea Coach to provide sets of questions for a topic, but there were some. Those who were interested ended up going through the question development process about two or three times, and then moved on, either to set up the study, or in cases of demonstration to other topics outside of the actual experience.

Over time, the Idea Coach was expanded twice, first to give answers as well as to suggest questions, and then to provide an Excel book of all efforts to create questions, and to create answers, each effort generating a separate tab in the Excel book. After the questions and answers had been registered in the study, and even before the user continued with the remaining parts of the set-up (viz., self-profiling classification questions, respondent orientation, scale for the evaluation) the Idea Coach produced a complete 'idea book.' The idea book comprised the one page for each iteration, whether question

or answer, and then a series of AI-generated summarizations, listed below.

1. Actual set of 15 questions
2. Key Ideas
3. Themes
4. Perspectives
5. What is missing
6. Alternative Viewpoints
7. Interested Audiences
8. Opposing Audiences
9. Innovations

The objective of the summarization was to make Idea Coach into a real Socratic tutor which asked questions, but also a provider of different points of view extractable from the set of 15 questions or 15 answers on a single Excel tab. That is, the Idea Coach evolved into a teaching tool, the basic goal to help the user come up with questions, but the unintended consequence being the creation of a system to educate the user on a topic in a way that could not be easily done otherwise.

The 'time dimension' of the process is worth noting before the paper shows the key results for the overarching topic of 'health + food'. The creation of the squib to develop the questions requires about 2-3 minutes, once the user understands what to do. Each return of the 15 questions requires about 10-15 seconds. The editing of the squib to create a new question requires about a minute. Finally, the results are returned after the user completes the selection of four questions and the selection of four answers for each. A reasonable size Excel-

based Idea book with about 30 total pages, questions, answers, AI summarization, in finished form thus emerges within 25-30 minutes. It is important to note that some of the questions will repeat, and there will overlaps from iteration to iteration. Even so, the Idea Coach, beginning at it did to ameliorate the problem of frustration and lack of knowledge ended up being a unique teaching guide, truly a Socrates with a PhD level degree. The correctness of information emerging is not relevant. What is relevant is the highlight of ideas and themes for the user to explore.

How Expressions of the Idea of 'Health' Generate Different Key Ideas and Suggested Innovations

Food and health are becoming inseparable, joined together at many levels. It is not the case that food is the same as health, except for some individuals who conflate the two. Yet it is obvious that there exists a real-world, albeit complex between what we eat and how healthy we are. These connections manifest themselves in different ways, whether simply the co-variation of food and health [9], the decisions we make about food choice [12,13], our immediate thoughts about what makes a food healthy or healthful [14], and finally but not least, how we respond behaviorally and attitudinally to claims made by advertisers and information provided by manufacturers [15,16].

The notion of critical thinking emerged as a way to investigate the differences in the way people use common terms to describe food and health. After many discussions about the topic, it became increasingly obvious that people banded about terms conjoining health and food in many ways. The discussions failed to reveal systematic differences. The question then emerged as to whether critical thinking powered by AI could generate clear patterns of difference in language when different expressions about food and health were used as the starting points. In simple terms, the question became simply like 'do we see differences when we talk a healthful food versus a health food?'

What Makes a Food HEALTHFUL?

The first phrase investigated about foods and health is 'What makes a food HEALTHFUL?' The focus is on the word 'healthful' to express the main idea Table 1 shows the question as presented in the squib, the 15 key ideas which emerge, an AI summarization of the key ideas by the new AI program, QuillBot [8,17] and finally suggested innovations based on the ideas. The bottom line for HEALTHFUL is that the output ends up providing a short but focused study guide to the topic created by the interests of the user, open to being enhanced by the user at will, and in reality, in minute.

What Makes a Food HEALTHY?

The second phrase investigated about foods and health is 'What makes a food HEALTHY? The terms 'healthy' and 'healthful' are used interchangeably in modern usage, although there is a subtle but profound difference. The word 'healthful' refers to the effect that the food has on a third party, such as a person. The word 'healthy' refers to the food itself, as if the food were the third party. It is precisely this type of thinking, which is part of the world of critical thinking, although the issue might go further to deal with the different implications of these two words.

The reality of the differences between healthful and healthy is suggested by Table 2, but not strongly. Table 2 again suggests a many-dimensional world of ideas surrounding the word 'healthy' when combined with the food. There is once again the reference to the food itself, as well as to the person. The key difference seems to be 'morphological', viz., the format of the output of AI. In Table 1 the key ideas were so numerous that the key ideas themselves generated different aspects to each idea. In contrast, Table 2 shows a far sparser result.

One clear opportunity for teaching critical thinking now emerges. That opportunity is to discuss the foregoing observation about the different morphologies of the answers, the reasons which might underly the reasons, and the type of ideas and innovations which emerge.

What Makes a HEALTH FOOD?

The fourth and final phrase investigated is 'Health Food'. Table 4 shows the results emerging from the AI analysis. Once again AI returns with relatively simple ideas.

Discussion and Conclusions

The objective of this study is to explore the different ways of learning how to ask questions. A great deal of today's research follows the path of the so-called 'hypothetico-deductive' system. The researcher begins with a hypothesis and runs an experiment to confirm or disconfirm that hypothesis, viz., to falsify if possible. The focus is often on the deep thinking to link the hypothesis to the experiment, then to analyze the results in a way which provides a valid answer [18]. The vast majority of papers in the literature begin with this approach, with the actual science focusing on the ability to test the hypothesis, and maybe add that hypothesis to our knowledge, a task often colloquially called 'plugging holes in the literature.'

Mind Genomics, an emerging approach to the issues of everyday life, does not begin with hypothesis, and does not the scientific logic of Popper, and the notion of hypothesis drive research. Instead, Mind Genomics begins as an explorer or cartographer might begin, looking for relations among variables, looking for regularities in nature, without however any underlying hypothesis about how nature 'works'. As a consequence, the typical experiment in Mind Genomics begins by an interesting conjecture about what might be going on in the mind of a person regarding a topic. The outcome of a set of Mind Genomics experiments ends up being an aggregate of snapshots of how people think about different topics, this collection of snapshots put into a database for others to explore and summarize.

With the foregoing in mind, the topic of coming up with interesting questions becomes a key issue in Mind Genomics. If the approach is stated simply as 'asking questions, and getting answers to these questions', with no direct theory to guide the question, then in the absence of theory how the system can move forward? The science of Mind Genomics is limited to the questions that people can ask. How can we enable people to ask better questions, to explore different areas of a topic with their questions. And in such a way expand this science based on question and answer.

Table 1: AI results regarding the phrase 'What makes a food healthful?' The table is taken directly from the outputs of Idea Coach (key ideas, innovations) and from Quillbot*.

<p>Question: What makes a food HEALTHFUL?</p> <p>Please give me questions which generate discussion from different points of view. Make the question challenge people and force them to think. Make the questions understandable to a student in middle school or older. AGAIN...WHAT MAKES A FOOD HEALTHFUL?</p> <p>Key Ideas emerging from questions about What Makes a Food HEALTHFUL?</p> <ol style="list-style-type: none"> Nutritional content plays a significant role in determining the healthfulness of a food. The source of a food, such as whether it is organic or GMO-free, may or may not be a factor in determining its healthfulness. Natural or minimally processed foods may not always be healthier than highly processed counterparts. The presence of a high amount of fat or sugar does not necessarily make a food unhealthy. Both macronutrient composition and micronutrient profile are important in determining the healthfulness of a food. Portion size can impact the healthfulness of a food, but smaller portions are not always healthier. Food preparation and cooking methods can affect the healthfulness of a meal. The environmental impact of food production may or may not influence the perception of its healthfulness. Food healthiness can vary depending on individual factors. The balance between different food groups contributes to the overall healthfulness of a meal or diet. A diverse food intake can contribute to a more healthful diet, but there may be challenges associated with it. Social and cultural factors may or may not be considered when determining the healthfulness of a food. Additives, preservatives, and artificial coloring can impact the healthfulness of a food, with both pros and cons. Personal and taste preferences may or may not play a role in determining the healthfulness of a food. Emotional or psychological benefits of a food may conflict with its lack of nutritional value. <p>QuillBot® Summary</p> <p>Nutritional content, source, and macronutrient composition are key factors in determining a food's healthfulness. Portion size, food preparation, and environmental impact also influence healthfulness. A balanced diet with different food groups contributes to overall healthfulness. Social and cultural factors, additives, preservatives, and artificial coloring can impact healthfulness. Personal taste preferences and emotional benefits may conflict with nutritional value. Food healthiness can vary depending on individual factors, and a diverse food intake can contribute to a more healthful diet.</p> <p>Innovations What makes a food HEALTHFUL?</p> <ol style="list-style-type: none"> Nutritional content and composition: Key Ideas 1, 5, 10 <ul style="list-style-type: none"> - Meal-planning apps that provide personalized nutritional recommendations based on individual needs and goals. - Food tracking devices or wearables that help individuals monitor their daily nutrient intake. - Nutritional labeling systems that provide clear and concise information about the composition and healthiness of food products. Organic and GMO-free: Key Idea 2 <ul style="list-style-type: none"> - Online platforms that connect consumers directly with local organic farmers and facilitate the purchase of fresh, organic produce. - GMO testing kits for consumers to verify whether the food they are consuming is GMO-free. - Organic certification programs that establish industry standards and ensure the integrity of organic claims. Processing and preparation: Key Ideas 3, 7 <ul style="list-style-type: none"> - Meal kits specifically designed to provide healthy and minimally processed meals with pre-portioned ingredients. - Cooking classes or workshops focused on teaching individuals how to prepare nutritious meals using whole, unprocessed ingredients. - Kitchen appliances or gadgets that make it easier and quicker to prepare nutritious meals, such as vegetable spiralizers or food steamers. Fat and sugar content: Key Idea 4 <ul style="list-style-type: none"> - Sugar and fat reduction initiatives by food manufacturers, aiming to create healthier versions of popular products. - Low-fat cooking oils or alternatives that provide the same taste and texture while reducing unhealthy fat content. - Sugar alternatives or natural sweeteners with fewer calories and a lower impact on blood sugar levels. Portion size and balance: Key Ideas 6, 10 <ul style="list-style-type: none"> - Portion control plates or containers that visually guide individuals on appropriate serving sizes and proportions of different food groups. - Meal delivery services that offer balanced and pre-portioned meals designed to meet specific dietary needs, such as weight loss or muscle gain. - Health education campaigns promoting the importance of portion control and balanced meals through public service announcements or interactive websites. Environmental impact: Key Idea 8 <ul style="list-style-type: none"> - Sustainable packaging alternatives for food products, such as compostable or biodegradable materials. - Plant-based alternatives to traditional animal-based products, reducing the environmental footprint associated with meat production. - Carbon labeling on food products, indicating their greenhouse gas emissions during the production process. Individual factors: Key Idea 9 <ul style="list-style-type: none"> - Personalized nutrition consultations with registered dietitians or nutritionists to create individualized meal plans and dietary recommendations. - DNA testing kits that assess an individual's genetic predisposition to certain health conditions or response to specific nutrients, helping tailor dietary choices accordingly. - Smartphone apps that track personal preferences, dietary restrictions, and health goals to offer customized meal suggestions and food recommendations. Diversity and challenges: Key Ideas 10, 11 <ul style="list-style-type: none"> - Online platforms that provide access to a wide range of ethnic and multicultural recipes, promoting culinary diversity and exploration. - Educational campaigns or school programs that raise awareness of different dietary needs and encourage acceptance and inclusion of diverse eating habits. - Food drives or donation programs that tackle food insecurity and ensure access to nutritious foods for marginalized populations. Social and cultural factors: Key Idea 12 <ul style="list-style-type: none"> - Food entrepreneurship programs or grants that support individuals from diverse backgrounds in starting their own food businesses and promoting culturally authentic cuisines. - Cultural competency training for healthcare professionals to enhance their understanding of different dietary preferences and enable better support for diverse communities. - Food festivals or events that celebrate various cultural cuisines, fostering community engagement and promoting multiculturalism. Additives and artificial ingredients: Key Idea 13 <ul style="list-style-type: none"> - Food label transparency initiatives that disclose the presence of additives and artificial ingredients, allowing consumers to make informed choices. - Developments in food science and technology to replace artificial ingredients with natural alternatives that provide the same functionality and taste. - Consumer education campaigns that raise awareness about the potential health risks associated with consuming excessive additives and encourage more natural food choices. Personal preferences: Key Ideas 14, 15 <ul style="list-style-type: none"> - Personalized meal delivery services that offer customizable menu options to cater to individual preferences, such as vegetarian

Table 2: AI results regarding the phrase 'What makes a food healthy?' The table is taken directly from the outputs of Idea Coach (key ideas, innovations) and from Quillbot*.

<p>Question: What makes a food HEALTHY?</p> <p>Please give me questions which generate discussion from different points of view. Make the question challenge people and force them to think. Make the questions understandable to a student in middle school or older. AGAIN...WHAT MAKES A FOOD HEALTHY?</p> <p>Key Ideas emerging from the question about What makes a food HEALTHY?</p> <ol style="list-style-type: none"> 1. The debate between nutritional content and overall well-being in determining the healthiness of food. 2. The relationship between calorie and fat content and the healthiness of food. 3. The impact of artificial additives and preservatives on the healthiness of food. 4. The comparison between whole foods and processed foods in terms of their healthiness. 5. The inclusion of sugars, both natural and added, in defining a food as healthy. 6. The influence of portion size on the healthiness of food. 7. The potential risks and benefits of high sodium or salt content in food. 8. The role of dietary restrictions in determining the healthiness of food. 9. The consideration of organic certification in determining the healthiness of food. 10. The significance of a food's environmental impact on its healthiness. 11. The distinction between processed and whole foods in terms of their healthiness. 12. The importance of macronutrient balance in defining the healthiness of food. 13. The inclusion of genetically modified organisms (GMOs) in defining a food as healthy. 14. The influence of cooking methods on the healthiness of food. 15. The role of cultural diversity in defining what constitutes a healthy diet. <p>Quillbot* Summary</p> <p>The text discusses the importance of nutritional content, calorie and fat content, artificial additives, portion size, sodium, dietary restrictions, organic certification, environmental impact, macronutrient balance, GMOs, cooking methods, and cultural diversity in determining food healthiness. It also compares whole and processed foods, sugars, portion size, sodium risks, dietary restrictions, organic certification, environmental impact, and the distinction between processed and whole foods.</p> <p>Innovations from: What makes a food HEALTHY?</p> <p>Themes: Nutritional content and overall well-being:</p> <ol style="list-style-type: none"> 1. Meal kit delivery services that provide portion-controlled, nutrient-dense meals that cater to specific dietary needs. 2. Food labeling policies that require prominent display of key nutritional information, such as calorie and nutrient content, to help consumers make informed choices. 3. Mobile applications or websites that provide personalized nutrition recommendations based on an individual's specific health and well-being goals. 4. Government regulations that limit the amount of added sugars in processed foods to promote healthier options. 5. Innovative food packaging solutions that preserve the nutritional content and freshness of food, reducing the need for artificial additives and preservatives. <p>Processing and additives:</p> <ol style="list-style-type: none"> 6. Food companies using natural additives and preservatives derived from plant-based sources or other natural substances. 7. Subscription-based services that deliver fresh, whole ingredients along with easy-to-follow recipes, encouraging consumers to cook more meals from scratch. 8. Innovative cooking techniques or appliances that retain more nutrients while cooking, such as steam or air frying. 9. Policies promoting the reduction of processed foods in school cafeterias and public institutions, replacing them with freshly prepared, healthier options. <p>Individual factors:</p> <ol style="list-style-type: none"> 10. Technology-based devices or applications that track portion sizes and provide real-time feedback to help individuals manage their food intake more effectively. 11. Sustainable food certifications and labeling systems that consider a product's environmental impact, such as its carbon footprint or packaging waste. 12. Diets tailored to specific dietary restrictions, such as gluten-free, dairy-free, or vegan options, available in restaurants, food delivery services, and grocery stores. 13. Blockchain technology that allows consumers to trace the origin and production processes of their food, promoting transparency and trust, especially for organic-certified products. 14. Consumer education programs that provide unbiased information about genetically modified organisms (GMOs), enabling individuals to make informed choices about GMO-containing foods. 15. Culinary and cultural exchange programs that promote the appreciation and integration of diverse healthy food traditions, fostering inclusivity and global well-being.

Table 3: AI results regarding the phrase 'What makes a good for health?' The table is taken directly from the outputs of Idea Coach (key ideas, innovations) and from Quillbot*.

<p>Question: What makes a food GOOD FOR HEALTH?</p> <p>Please give me questions which generate discussion from different points of view. Make the question challenge people and force them to think. Make the questions understandable to a student in middle school or older. AGAIN...WHAT MAKES A FOOD GOOD FOR HEALTH?</p> <p>Key Ideas emerging from questions about GOOD FOR HEALTH?</p> <ol style="list-style-type: none"> 1. The importance of considering the calorie content versus the quality of ingredients in determining a food's healthfulness. 2. The debate over whether processed foods can still be part of a healthy diet. 3. The accessibility and affordability of good-for-health foods for individuals of all financial situations. 4. The necessity for good-for-health foods to be free from additives, preservatives, and artificial ingredients. 5. The role of nutritional content in determining the healthfulness of a food. 6. The debate over whether a food can be considered good for health if it only focuses on one aspect of nutrition. 7. The potential health benefits of traditional or cultural foods versus the importance of balance and variety in one's diet. 8. The influence of personal preference and taste on determining whether a food is considered good for health. 9. The consideration of potential allergens and dietary restrictions in determining a food's healthfulness. 10. The impact of cooking and preparation time on a food's convenience and healthfulness. 11. The debate over whether good-for-health foods should prioritize environmental sustainability and ethical sourcing. 12. Exploring the concept of "superfoods" and their true impact on a food's healthfulness. 13. The role of food labels and certifications in identifying foods as good for health and their reliability. 14. The consideration of mental and emotional well-being in determining a food's healthfulness. 15. Questions about whether a food can be considered good for health if it lacks essential nutrients but provides other health benefits. <p>Quillbot* Summary</p> <p>The text discusses the importance of calorie content, ingredient quality, processed foods, accessibility, affordability, nutritional content, and balance in a healthy diet. It also discusses the debate over focusing on one aspect of nutrition, traditional or cultural foods, personal preferences, allergens, cooking time, environmental sustainability, "superfoods," food labels, mental and emotional well-being, and whether a food lacks essential nutrients but offers other health benefits. It also explores the role of food labels and certifications in identifying good-for-health foods.</p>

Innovations from: What makes a food GOOD FOR HEALTH?

New or innovative products, services, experiences, or policies suggested by the themes include:

1. Ingredient-focused food labeling: Developing a standardized labeling system that provides information about the quality of ingredients, including whether they are free from additives, preservatives, and artificial ingredients.
2. Online platforms for affordable good-for-health foods: Creating online platforms that connect consumers with affordable, high-quality, and nutritious food options, especially for individuals with limited financial resources.
3. Allergen-friendly processed foods: Developing processed food options that cater to individuals with specific dietary restrictions or allergies, ensuring their healthfulness and inclusivity.
4. Personalized nutrition apps: Utilizing technology to create personalized nutrition apps that consider an individual's specific dietary needs, preferences, and health goals.
5. Superfood research and development: Investing in research and development to identify and cultivate new "superfoods" that provide a wide range of essential nutrients and health benefits.
6. Food education programs: Implementing educational programs that teach individuals about the importance of a balanced diet and how to prepare healthy meals using accessible and affordable ingredients.
7. Certifications for environmental sustainability and ethical sourcing: Introducing certifications or labels that signify foods' adherence to environmental sustainability and ethical sourcing practices, allowing consumers to make informed choices.
8. Food waste reduction initiatives: Developing policies and initiatives that promote reducing food waste and encourage the utilization of leftover ingredients to create healthy meals.
9. Mental health-focused food guidelines: Incorporating guidelines for promoting mental and emotional well-being into dietary recommendations, emphasizing the importance of a balanced diet for overall health.

Table 4: AI results regarding the phrase 'What makes a health food?' The table is taken directly from the outputs of Idea Coach (key ideas, innovations) and from Quillbot*.

<p>WHAT MAKES A HEALTH FOOD?</p> <p>Please couch the questions in terms of EXPLAIN IN DETAIL WHAT MAKES A HEALTH FOOD. Then give us a question which open up a discussion of different points of view. Make the question at least 15 words, to explain WHAT MAKES A HEALTH FOOD. Make the question interesting to answer and make the question understandable to a 12-year-old middle school student.</p> <p>Key Ideas emerging from questions about What Makes a Health Food?</p> <p>The key ideas in the topic questions are the characteristics that make a food healthy, the importance of a balanced nutritional profile, the role of specific nutrients like vitamins, minerals, protein, and fiber, the impact of ingredients and preparation methods on a food's healthiness, the effects of portion size and calorie content, and the influence of added sugars and sweeteners. Additionally, the concept of organic foods and their potential health benefits is also discussed.</p> <p>QuillBot* Summary</p> <p>The topic discusses food health, balanced nutritional profiles, specific nutrients, ingredients, portion size, calorie content, added sugars, and organic foods, while also discussing their potential health benefits.</p> <p>Innovations from WHAT MAKES A HEALTH FOOD</p> <ol style="list-style-type: none"> 1. Meal delivery services that focus on providing healthy, balanced meals with optimal nutritional profiles. 2. Cooking classes or workshops that teach individuals how to cook using healthy ingredients and techniques. 3. Apps or websites that provide information on the nutritional content and ingredients of commonly consumed foods and beverages. 4. Nutritional labeling on restaurant menus to make it easier for individuals to make healthier choices when dining out. 5. Community gardens or urban farming initiatives that promote access to fresh, organic produce in urban areas. 6. Policies and regulations that require food manufacturers to disclose the amount of added sugars in their products. 7. Nutrient-dense food products or snacks that provide essential vitamins, minerals, and protein in a convenient and portable form. 8. Schools implementing nutrition education programs that teach children about the importance of healthy eating and the impact of food choices on their overall health. 9. Digital health platforms or apps that offer personalized nutrition plans based on an individual's specific nutrient needs and goals. 10. Food labeling systems that use color-coded labels or symbols to indicate the nutritional quality of a product, making it easier for consumers to make healthier choices.
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Many of the ideas presented in this paper have been taken from the pioneering work of the late Professor Anthony G. Oettinger of Harvard University, albeit after a rumination period going on to almost 60 years [19].

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