



Searching for Information about Weight Loss-How AI (Idea Coach) Promotes Critical Thinking by Synthesizing Mind-Sets and then Asking 'What' and 'What If' Question

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Abstract

Artificial intelligence (Idea Coach) embedded in a do-it-yourself research platform (www.bimileap.com) was used to jump-start the ideation issues involved in weight loss. Rather than brainstorming about relevant questions to ask, a potentially lengthy process, the user posed a detailed question to Idea Coach. The question posited the existence of three yet-to-named mind-sets of people involved in the search to achieve healthy weight loss. For each undefined mind-set the AI was instructed to give the mind-set a name, and answer questions about what would interest the mind-set, what types of questions would the mind-set answer, etc. The extended instructions generated clear, testable ideas, similar at the surface level to what might be discovered by a researcher. The approach provides a new way to generate critical thinking about new topics in a way that is simple to do, very fast, and inexpensive.

Keywords: Information; Weight Loss; Critical Thinking; Synthesizing

Introduction

The recent explosion of AI has brought with it new vistas of application. Where today's stock market seems focused on technology, on chips, on capabilities, an emerging opportunity is in the world of critical thinking, where new ideas and insights are relevant [1]. Today's insights providers are focused on using AI for summarization of discussions, and from that generating new hypothesis through the insights gained [2-4]. These applications are balanced by the almost fierce discussions of just what should be the limits of AI, a reflexive attempt to apply governance to what could only be called an explosion of opportunity.

As part of this explosion of opportunity we present some recent AI-based 'experiments,' or better AI-based efforts to synthesize the mind of people when the people are described in a certain fashion. The notion of creating synthetic respondents is becoming increasingly popular. One could use AI to describe the characteristics of a person, and let AI tell the creator of that person what the person would do. Various organizations are now promoting the idea of synthetic respondents for research studies (e.g., Yabble [5],

promising that these synthetic respondents will supplant the more expensive human respondents. This paper does not deal with the future applications of synthesized respondents, but rather goes into another direction, one focusing on knowledge, not capability.

The origin of this paper can be traced to an almost three-decades long effort to understand how people think about the world of the ordinary. The early studies emerged in the first years of the 1990's, when author Moskowitz and colleague Derek Martin presented a new concept of research to the ESOMAR congress in Copenhagen, Denmark [6]. The approach was called Idea Map. The notion was that a new opportunity presented itself to democratize insights through the computer, and through a DIY, do it yourself system. The fundamental idea was that researcher could get better idea about the reality of daily life when they present people, survey takers (aka respondents) with vignettes, combinations of phrases or ideas, and instruct the respondents to rate the vignette, one vignette at a time. In turn, the vignettes comprised small phrases, each phrase painting a word picture. The phrases were not skillfully woven together into a coherent whole, but simply presented

to the respondent as a combination of phrases, one phrase atop the other. The respondent was instructed to rate the combination on a scale. The ratings were then deconstructed by OLS (ordinary least squares) regression, to show how each element or phrase 'drove' the rating [7,8].

For the simple case of four different categories of phrases (A-D), each with four different options (e.g., A1, A2, A3, A4), the researcher simply created a set of vignettes, the aforementioned combinations. Rather than simply creating the vignettes in a random, helter-skelter way, the researcher followed a plan, called an experimental design. The design specified the number and composition of the vignettes. Thus, for the aforementioned four categories, each with the four messages, the underlying experimental design prescribed a precise set of 24 vignettes. Each of the 16 elements would appear exactly five times in the 24 vignettes and be absent 19 times. Furthermore, most of the vignettes comprises one element from each category, sometimes one element from only three of the four categories, and sometimes one element from two of the four categories. The other categories were missing. Finally, each person saw a unique set of 24 vignettes, every set constructed in the exact same way. All that differed was the combinations. The underlying structure was the same [9].

The analysis of this data was simple, requiring only that the researcher first convert the rating scale to a yes/no, also called a binary scale. For example, when the rating scale was a 5-point buy scale as shown below, the derived scale was a 2-point yes/no scale. The reason was simple. Managers who were using the data had no idea about how to interpret the numbers and were demonstrably disinterested in statistics. Managers simply wanted to know what information they would take away, and not be subject to statistical discussions which seemed to add little light.

The analysis of these data was a simple OLS regression, relating the newly created simple-to-understand variable (e.g., I'll buy this product) to the presence of the 16 elements. The OLS regression created a simple equation: Binary Dependent Variable = $k_1A1 + k_2A2 + k_3A3 + k_4A4 + k_5A5 + k_6A6 + k_7A7 + k_8A8 + k_9A9 + k_{10}A_{10} + k_{11}A_{11} + k_{12}A_{12} + k_{13}A_{13} + k_{14}A_{14} + k_{15}A_{15} + k_{16}A_{16}$. The coefficients made sense to managers (viz., ability to drive stated purchase). Furthermore, it was straightforward to apply a different type of statistics, clustering, to divide the group of respondents into two or more different, non-overlapping groups of people who responded in clearly different, different, eminently interpretable patterns. These are the so-called mind-sets [10,11].

In the end Mind Genomics created its own world of experimentation. The unifying idea was that the world of people's perceptions of daily life could be best understood by having people evaluate combinations of simple, granular statements about reality. People did not have to know what they thought, they just had to be exposed to messaging about a topic. How people thought about this topic would emerge from the simple process of evaluating, creating regression models, and clustering.

The reaction to this approach ranged from interested to outright rejection. Those who were interested recognized that by providing real people with vignettes, the research protocol ended up creating a simulated moment of reality, that simulation constructed in the mind of the respondent who somehow combined the disparate messages into something that they could evaluate. The deconstruction of the ratings into the part-worth contribution of the different elements revealed that the respondents doing this task seemed to have little problem focusing on what was important. That is, the data were consistent. Respondents seemed able to pick out the important messages from what seemed to be a confused mess.

Further work with this new way of putting together vignettes, viz. by combining disparate messages according to an underlying plan (called an experimental design), showed that not only could one discern consistent responses from a panel, but that the consistency of responses was even higher when the researcher applied cluster analysis to the data. The clustering generated non-overlapping groups of people, showing radically different patterns of coefficients. The most exciting outcome of this effort emerged when the data analysis was made automatic, and given to students of school age, in the third grade, the eighth grade and high school, respectively. The excitement was palpable when the students ended up seeing the emergence of mind-sets which made sense to them, whether the mind sets dealt with how third-grade mathematics would evolve over the next decade [12], or the excitement of a high school student studying the messaging for better nutrition [13].

The process itself is simple. The researcher starts by requesting the Mind Genomics platform to create a new study, a request followed immediately by the creation of a templated set of screens. The only job of the researcher or user of the Mind Genomics system is to fill the empty spaces in the template with the relevant information requested by the template. Figure 1 shows the simple first steps occurring after the user has set up the template of the

new study. Panel A shows the request to name the study. Panel B shows the templated request for four questions which tell a story. The goal here is create the four categories, each category of which will be followed by a request for four answers to each of the four questions. In the language of Mind Genomics, the program requests four categories, each of which will have four elements.

It is at this point in the sequence that AI was introduced in the form of idea Coach. Users often 'froze' and felt it beyond them to ask four questions which tell a story. Although young children seem not to have a problem, somehow the education system focuses on giving answers to direct questions, not on creative and critical thinking to develop the questions. As a consequence, any users of the Genomics platform dropped out, aborting their efforts. The introduction of AI to create questions and also answer those questions changed that dynamic. Figure 1, Panel C shows the input page for AI, the AI given the name Idea Coach. Finally, Panel D shows the output from Idea Coach, a little of the voluminous information returned by the AI embedded in Idea Coach.

Detailed understanding from structured questions

The remainder of this paper focuses on the type of information that can be obtained by giving Idea Coach prompts to move beyond questions and answers, and into suggestions about the 'way the world works'. It is important to note here that the approach does not substitute for actual research, in this case confirmatory research. Rather, the approach presented here provides the user with a way to structure questions, allowing AI to provide suggestions that can be directly tested. Furthermore, the approach now presented creates a framework for critical thinking, a framework that can be used by anyone, for literally any topic. The user can craft the question to provide the type of information needed, doing so in a matter of minutes, with the ability to modify the question (viz., the squib) in ways that can lead to non-systematic as well as systematic exploration of a topic [14].

The expanded input question (squib shown in Table 1)

The topic here is 'healthful weight loss that I can trust. Rather than simply providing that objective, Table 1 shows the detailed question asked to the squib. The question is not simply the question, but also some assumptions about the field such as the fact that there are three mind-sets. Furthermore, the user is now able to instructed the embedded AI to provide specific types of answers, shown in the numbered questions. As shown afterwards, the AI attempts to answer these specific questions, but occasionally cannot fulfill the request in its entirety.

Before looking at the results from the efforts it is worth noting that the ability to ask the questions becomes an opportunity learning critical thinking. The instructions are created to allow the user to approach the issue in modules. For example, it is easy to change the problem, keeping everything else the same, to see what happens. It is also easy to change the nine questions, using one's imagination to create questions for AI on this specific topic. The fact that it takes about 1-3 minutes to type/edit the squib in Table 1 and resubmit to the Mind Genomics program (see Figure 1, Panel D) means that the user can learn by having fun, playing with one variable at a time in the squib. The Idea Coach returns with the information (discussed below in Table 2), within 15-30 seconds, so that education is a lot immediate.

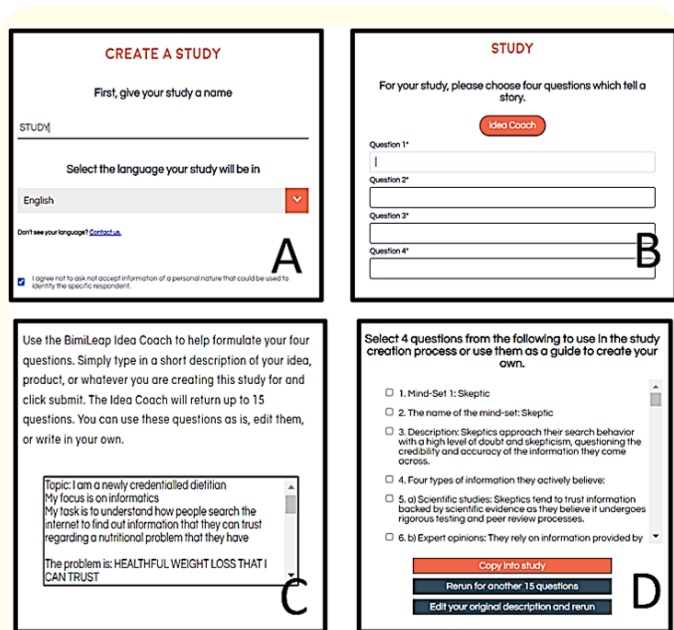


Figure 1: The templated structure of the Mind Genomics process, showing the incorporation of AI in Idea Coach. Panel A shows the set up of the study. Panel B shows the request for four questions. Panel C shows part of the input to Idea Coach. Panel D shows part of the voluminous and structured feedback provided by Idea Coach.

Topic: I am a newly credentialled dietitian

My focus is on informatics

My task is to understand how people search the internet to find out information that they can trust regarding a nutritional problem that they have

The problem is: HEALTHFUL WEIGHT LOSS THAT I CAN TRUST

I know that there are three mind-sets in this topic.

For each mind-set of this topic, please provide me the following information in numbered order

The name of the mind-set

A description of the mind-set regarding what describes their search behavior

Four types of information that they actively believe, and for each piece of information that they believe, why do they believe that information? What are they thinking when they read that information?

Four types of information that they actively disbelieve. Why do they disbelieve that information? What are they thinking when they read that information?

What is the likely thing they will do after reading the information in which they believe?

What is their likelihood of nutritional success?

What are the barriers which stand in the way of their nutritional success?

Can these people be identified by just talking to them?

What are five questions that they will ask a nutritionist and for each question what will the nutritionist say?

As requested above, do the exercise EXACTLY THREE TIMES, ONCE FOR EACH MIND SET

Table 1: The squib (extended question) submitted to the Idea Coach.

The immediate and then slightly later response provided by Idea Coach (Table2)

Idea Coach was developed to provide simple AI-based answers to direct questions. During an exploration of its capabilities, author Mulvey explored what might occur when the simple question (e.g., what are 15 questions to ask about healthful weight loss) is replaced by a compound set of request embedded in the squib. Totally unexpected, Idea Coach produced a set of answers to the compound question, following the style and order request by the squib. Exploration of this capability generated increasingly complicated by always structured requests, such as the that shown in table 1.

The request was run many times, each time with small change sin the squig, such as changing the topic to specify the issue (HEALTHFUL WEIGHT LOSS THAT I CAN TRUST) and add a qualifier (e.g., requested by a woman, requested by a middle-aged woman, requested by a middle-aged woman with adult-onset diabetes, etc.)

Table 2 shows the first set of outputs for the request, the output returning about 20-30 seconds after request, and readable in the Mind Genomics program, (www.bimileap.com). As noted above, the squib could be modified 'on the fly' (see figure 1, Panel D. bottom option), and then re-run. The information shown in Table 2 comes back in two parts.

Immediate output (15-20 seconds after the request is submitted to Idea Coach)

- Name of the mind-set (e.g., Traditionalist)
- Description
 - Four types of information they actively believe
 - Likely action after reading information they believe
 - Barriers to nutritional success
 - Five questions they make ask a nutritionist

Mind-set 1: Traditionalist

Description: Traditionalists prefer conventional and well-established methods for weight loss. They trust authoritative sources and seek structured plans.

Four types of information they actively believe:

Calorie counting: Traditionalists believe consistently tracking and managing calorie intake is crucial for weight loss because it creates a clear understanding of energy balance.

Portion control: They believe reducing portion sizes helps control calorie intake and promotes weight loss.

Regular exercise: Traditionalists trust that incorporating regular physical activity, such as walking or gym workouts, is essential for weight loss.

Balanced diets: They believe following balanced meal plans, which include all food groups in moderation and rich in whole foods, is necessary for successful weight loss.

Four types of information they actively disbelieve:

Fad diets: Traditionalists usually distrust fad diets as they tend to be unsustainable or lack scientific evidence.

Weight loss supplements: They may have skepticism towards weight loss supplements as they prefer relying on whole foods.

Extreme or restrictive diets: Traditionalists often disbelieve extreme or restrictive diets due to concerns over nutrient deficiencies or long-term effectiveness.

Celebrity endorsements: They may be skeptical of weight loss advice or products endorsed by celebrities, preferring evidence-based information over marketing tactics.

Likely action after reading information they believe: Traditionalists are likely to implement the information into a structured weight loss plan, such as tracking calories and following portion control.

Likelihood of nutritional success: Traditionalists have a moderate likelihood of nutritional success as they place importance on evidence-based principles and structured plans.

Barriers to nutritional success: Potential barriers include difficulty adhering to calorie tracking, lack of time for exercise, and challenges maintaining long-term dietary changes.

Identifying traditionalists by talking to them: Traditionalists can be identified by their preference for structured weight loss plans, reliance on reputable sources, and interest in evidence-based information.

Five questions traditionalists might ask a nutritionist:

Question: "How many calories should I consume daily for weight loss?"

Answer: The nutritionist might provide a personalized calorie target based on the individual's age, gender, weight, and activity level.

Question: "What portion sizes should I aim for in my meals?"

Answer: The nutritionist can provide portion control guidelines, explaining appropriate serving sizes and addressing the importance of balance and variety.

Question: "What types of exercises should I incorporate into my routine?"

Answer: The nutritionist can suggest various exercises tailored to their preferences and abilities, emphasizing the benefits of both cardiovascular and strength training exercises.

Question: "Are there any specific foods I should avoid during weight loss?"

Answer: The nutritionist can discuss the concept of moderation, explaining that no foods need to be completely avoided but rather consumed in appropriate quantities.

Question: "Can you recommend some balanced meal plans for weight loss?"

Answer: The nutritionist may provide sample meal plans that include a variety of nutritious foods and appropriate portion sizes.

What is missing - traditionalist

How do traditionalists define a "balanced diet"?

Are there any specific meal plans or guidelines that traditionalists follow for calorie counting and portion control?

How do traditionalists view the role of exercise in weight loss? Do they prioritize certain types of exercise over others?

Are there any potential drawbacks or limitations to calorie counting and portion control, according to traditionalists?

How do traditionalists approach weight loss maintenance after achieving their goals?

Alternative Viewpoints: Traditionalist:

Instead of calorie counting, focus on intuitive eating and listening to the body's hunger cues for weight management.

Explore portion control in a flexible way, allowing for occasional indulgences and focusing on overall balance rather than strict restriction.

Experiment with different forms of exercise beyond traditional gym workouts, such as yoga, dance, or outdoor activities.

Instead of following pre-planned meal plans, try personalized meal planning based on individual preferences and dietary needs.

Mind-set 2: Trend follower

Description: Trend followers eagerly seek the latest and popular weight loss trends. They are open to unconventional ideas and enjoy exploring new approaches.

Four types of information they actively believe:

Intermittent fasting: Trend followers believe that intermittent fasting can be an effective weight loss approach because it restricts eating within specific time windows, which can result in reduced calorie intake.

High protein diets: They trust that diets high in protein promote satiety and muscle growth, leading to enhanced weight loss results.

Plant-based diets: Trend followers believe that adopting a plant-based diet, either vegetarian or vegan, can improve overall health and contribute to weight loss.

Superfoods: They actively believe that specific foods, like chia seeds or acai berries, have exceptional weight loss properties.

Four types of information they actively disbelieve:

Low-fat diets: Trend followers may disbelieve low-fat diets as they associate fat with satiety and believe certain fats, like healthy oils, can aid weight loss.

Conventional exercise routines: They might disbelieve traditional exercise routines and seek alternative forms of physical activity, like trendy fitness classes or exercises promoted on social media.

Carbohydrate restriction: Trend followers might disbelieve cutting out carbohydrates entirely, as they believe in the benefits of consuming whole grains and complex carbs for overall health.

Conventional calorie counting: They may disbelieve solely focusing on calorie counting and prefer methods like intuitive eating or listening to their body's hunger cues.

Likely action after reading information they believe: Trend followers will likely experiment with the trendy weight loss approaches they find and incorporate them into their lifestyle or diet.

Likelihood of nutritional success: The likelihood of nutritional success varies as some trendy weight loss approaches can be effective when implemented sensibly, while others may lack scientific evidence or long-term sustainability.

Barriers to nutritional success: Potential barriers include the risk of adopting unsustainable diets or unsupported trends, lack of individualized guidance, and inadequate evaluation of overall nutritional needs.

Identifying trend followers by talking to them: Trend followers can be identified by their fascination with new weight loss trends, openness to unconventional ideas, and their inclination to experiment with alternative approaches.

Five questions trend followers might ask a nutritionist:

Question: "What are the benefits of intermittent fasting for weight loss?"

Answer: The nutritionist can explain how intermittent fasting can promote calorie restriction, enhance insulin sensitivity, and potentially lead to weight loss, while also discussing the importance of individualized approaches.

Question: "Can you provide examples of plant-based meals that aid in weight loss?"

Answer: The nutritionist can suggest balanced plant-based meal options incorporating a variety of fruits, vegetables, whole grains, legumes, and plant-based protein sources.

Question: "Are there any superfoods that can speed up my weight loss?"

Answer: The nutritionist can explain that while certain foods offer nutritional benefits, there are no specific superfoods that guarantee weight loss but rather an overall balanced diet is key.

Question: "How can I incorporate more high-protein foods into my diet?"

Answer: The nutritionist can provide a list of protein-rich foods such as lean meats, poultry, fish, legumes, and dairy or plant-based alternatives, along with ideas for including them in meals and snacks.

Question: "Is it okay to avoid certain food groups completely, like carbohydrates?"

Answer: The nutritionist can discuss the importance of consuming a balanced diet that includes carbohydrates, emphasizing the benefits of whole grains and addressing portion control as appropriate.

What is missing – trend watcher

What are some specific examples of popular weight loss trends that trend followers may be interested in?

Are there any potential risks or side effects associated with the weight loss trends that trend followers believe in?

How do trend followers differentiate between evidence-based trends and those lacking scientific support?

How do trend followers navigate conflicting information about certain trends or approaches to weight loss?

Are there any guidelines or recommendations for trend followers to follow when incorporating new weight loss trends into their diet or lifestyle?

Alternative Viewpoints: Trend Follower:

Consider other forms of intermittent fasting, such as time-restricted eating, alternate-day fasting, or modified fasting approaches.

Explore different dietary approaches besides plant-based diets, such as low-carb or ketogenic diets, Mediterranean diets, or paleo diets.

Instead of relying on specific "superfoods," focus on overall nutrient density and variety in the diet.

Combine trendy exercise routines with traditional forms of exercise for a well-rounded fitness routine.

Mind-set 3: Skeptic

Description: Skeptics approach weight loss information with caution and scrutiny. They seek scientific evidence, are critical of trends, and want solid proof before making dietary changes.

Four types of information they actively believe:

Evidence-based research: Skeptics actively believe in weight loss information supported by well-conducted scientific studies published in reputable journals.

Expert opinions: They value recommendations from registered dietitians, nutritionists, or other qualified professionals who rely on scientific evidence and experience.

Long-term behavior changes: Skeptics believe that sustainable weight loss requires adopting healthy habits rather than quick-fix solutions, focusing on lifestyle changes rather than short-term diets.

Balanced, whole-food diets: They trust in the benefits of consuming a balanced diet, focusing on whole foods, and portion control for weight loss and overall health.

Four types of information they actively disbelieve:

Unrealistic claims: Skeptics disbelieve exaggerated claims, like "lose 10 pounds in a week" or promises of miracle products, recognizing that sustainable weight loss requires gradual progress.

Detox diets: They may disbelieve detox diets as there is limited scientific evidence supporting their effectiveness and concerns regarding nutrient deficiencies.

Internet influencers: Skeptics might distrust weight loss recommendations from influencers without sufficient credentials or scientific background.

<p>Marketing gimmicks: They disbelieve weight loss products or services marketed with flashy advertisements, recognizing that marketing tactics can manipulate information.</p> <p>Likely action after reading information they believe: Skeptics are likely to adopt evidence-based information into their weight loss approach while remaining cautious about unsubstantiated claims or trends.</p> <p>Likelihood of nutritional success: Skeptics have a higher likelihood of nutritional success as they base their actions on reputable evidence, are open to making long-term behavioral changes, and prioritize realistic goals.</p> <p>Barriers to nutritional success: Skeptics might face barriers, such as a lack of easily accessible evidence-based information, conflicting research findings, or difficulties finding trustworthy sources.</p> <p>Identifying skeptics by talking to them: Skeptics can be identified by their persistent demand for scientific evidence, reliance on reputable sources, and adherence to cautious and evidence-based approaches.</p> <p>Five questions skeptics might ask a nutritionist: Question: "What scientific evidence supports the effectiveness of this weight loss method?" Answer: The nutritionist can discuss relevant studies, research findings, or systematic reviews supporting the recommended weight loss method.</p> <p>Question: "Can you explain the physiological mechanisms behind successful long-term behavior changes for weight loss?" Answer: The nutritionist can provide an overview of how sustainable behavior changes influence metabolism, appetite regulation, and overall health</p> <p>What is missing - skeptic</p> <p>How do skeptics evaluate the credibility of scientific studies and research in the field of weight loss? Are there any common misconceptions or fallacies that skeptics encounter when it comes to weight loss information? How do skeptics identify qualified professionals or trustworthy sources of information in the field of weight loss? How do skeptics navigate conflicting research findings or contradictory information in the field of weight loss? What are some strategies that skeptics can use to critically evaluate weight loss claims and determine their validity?</p> <p>Alternative Viewpoints Skeptic:</p> <p>Take into account anecdotal evidence and individual experiences in addition to scientific research. Consider alternative health professionals or practitioners who may offer different perspectives on weight loss. Explore the potential benefits and drawbacks of short-term diets or detox diets in specific situations or under medical supervision. Evaluate marketing claims critically but also remain open to innovative approaches that may have limited scientific evidence but show potential for success.</p>

Table 2: The first information returned by the AI about the mind-sets, and other information about these mind-sets returned about 30 minutes later, after a deeper AI-based 'summarization.

Mind-set 1: Traditionalist.

Summarized output (15-30 minutes after the entire project has been analyzed by AI, the project comprising anywhere from 1-50 or more iterations)

- What is missing?
- Alternative viewpoints

A closer read of the results in table 2 suggest that AI may provide a strong first effort to suggest topics and answers. There is no guarantee that the mind-sets are accurate, or that the information provided is accurate. Rather, Table 2 provides the new or even experienced user with a wealth of ideas and suggestions in a matter of minutes. Thus, one could use Table 2 as an introduction into a topic

one does not know, or perhaps a 'foil' to challenge and compare to the information that one believes to be true.

The final information returned by Idea Coach is provided in the form of an Excel workbook called the Idea Book. The Idea Book devotes on tab for each iteration (see Figure 1, panel D). The actual Idea Book returns with a fully summarized table for each iteration. Table 2 shows the summarized information relevant to each mind-set as attached to the mind-set.

For those topics requiring a global analysis of the entire iteration, the Idea Coach presents four new summarization, shown in 'table 3.

The four new summarizations are

- Perspectives
- Interested audiences.
- Opposing audiences
- Innovations

Discussion and Conclusions

Researchers in science are accustomed to the slow, meticulous creation of knowledge. Much of the approach comes from the emphasis of science on developing hypotheses and using appropriate experiments to falsify them. This is called the hypothetico-deduc-

Perspectives

Mind-set:

Plus: Understanding the mind-set of different groups can help nutritionists tailor their approach and advice to better align with their clients' beliefs and attitudes.

Minus: It may be challenging to change ingrained mindsets and beliefs, especially if they are resistant to new information or scientific evidence.

Interesting: Exploring different mindsets can offer insights into the diverse perspectives and approaches people have when it comes to weight loss and nutrition.

Information

Plus: Identifying the information that different groups believe and disbelieve can help nutritionists address common misconceptions and provide accurate, evidence-based information.

Minus: Overcoming deeply held beliefs and challenging misinformation can be a difficult task, requiring patience and effective communication.

Interesting: The sources and validity assigned to certain information may vary among different groups, shedding light on the factors that influence their beliefs.

Actions and barriers:

Plus: Understanding the likely actions and barriers for different groups can help nutritionists develop tailored strategies to support their clients' nutritional success.

Minus: Addressing barriers may require significant effort and adjustments to incorporate individual preferences and overcome resistance to change.

Interesting: Identifying common barriers can reveal patterns and trends in mindset and behavior, informing strategies to address and overcome them.

Identifying:

Plus: Being able to identify different groups by talking to them can help nutritionists tailor their communication and advice to better resonate with their clients.

Minus: It may not always be easy to discern which group a client belongs to, as individuals may exhibit characteristics of more than one group or may not neatly fit into any specific category.

Interesting: Identifying distinct mindsets and approaches can offer insights into the diversity of perspectives and motivations clients may have.

Sample questions:

Plus: Knowing the types of questions different groups might ask can help nutritionists anticipate and address their concerns, allowing for more effective communication and guidance.

Minus: Addressing specific questions may require individualized attention, as each client's concerns and interests may differ.

Interesting: The questions asked by different groups can provide insights into their priorities, uncertainties, and areas of focus, highlighting the specific factors that drive their decision-making process.

Interested Audiences

Individuals looking to lose weight: This topic provides valuable information and insights for individuals who are actively trying to lose weight and are interested in different mindsets and approaches to weight loss. They can gain a better understanding of traditionalist, trend follower, and skeptic mindsets, and identify which mindset aligns with their own beliefs and preferences.

Nutritionists and dietitians: Nutritionists and dietitians can use this information to gain insights into the thought processes and beliefs of different types of individuals seeking weight loss guidance. By understanding the mindset of their clients, they can tailor their advice and recommendations to better meet their needs and improve their likelihood of success.

Fitness professionals: Fitness professionals who work with clients on weight loss goals can benefit from understanding the different mindsets individuals may have. By recognizing whether someone aligns more with traditionalist, trend follower, or skeptic thinking, they can provide guidance that resonates with their clients and helps them achieve their weight loss goals.

<p>Researchers and academics: This topic can be of interest to researchers and academics studying weight loss and behavior change. By understanding the different mindsets people have towards weight loss, they can design studies and interventions that target specific audiences more effectively. Additionally, these questions can spark further research into the effectiveness and impact of different weight loss approaches.</p>
<p style="text-align: center;">Opposing Audiences</p> <p>Supporters of fad diets: Traditionalists and skeptics both express skepticism towards fad diets, which can make them potential opponents of the topic. Supporters of fad diets might argue that these unconventional approaches have worked for them or claim that the traditional methods are too restrictive or ineffective.</p> <p>Advocates for extreme or restrictive diets: Traditionalists are hesitant about extreme or restrictive diets, emphasizing concerns about nutrient deficiencies and long-term effectiveness. Advocates for these types of diets may oppose the topic, arguing that they have personally experienced success or advocate for the potential health benefits associated with specific types of restrictive eating.</p> <p>Influencers endorsing weight loss supplements or products: Traditionalists are skeptical of weight loss supplements and tend to rely on whole foods instead. Influencers who promote these products might oppose the topic, claiming that their own experiences or endorsements from others prove the effectiveness of such supplements or products.</p> <p>Those who reject evidence-based approaches: Skeptics actively seek scientific evidence to support weight loss claims, while those who reject evidence-based approaches might oppose the topic. They may argue that personal anecdotes or alternative belief systems are enough to validate the efficacy of certain weight loss methods, dismissing the need for scientific evidence.</p> <p>Individuals resistant to change: Both traditionalists and skeptics prioritize structured plans, evidence-based information, and long-term behavior changes. However, individuals resistant to change may oppose the topic, arguing that their current methods or beliefs are sufficient for weight loss success. They may be hesitant to adopt new approaches or challenge their current mindset or habits.</p>
<p style="text-align: center;">Innovations</p> <p>Personalized weight loss programs: Traditionalists may benefit from personalized programs that align with their mindset and beliefs, considering their preference for familiar and proven methods.</p> <p>Evidence-based educational resources: Providing well-researched and scientifically backed information can address the skepticism of Trend followers and Skeptics, helping them make informed decisions.</p> <p>Supportive communities: Creating online or offline communities that cater to the needs and preferences of each group can help individuals find like-minded individuals and receive encouragement and guidance.</p> <p>Collaboration between nutritionists and trend influencers: Engaging with influencers popular among Trend followers can help in spreading accurate and evidence-based information, debunking myths, and promoting healthy habits.</p> <p>Consumer education initiatives: Partnering with reputable organizations to conduct educational campaigns can help Traditionalists, Trend followers, and Skeptics develop a deeper understanding of nutrition, weight loss, and wellness.</p> <p>Policy changes: Policymakers can develop regulations that ensure the accuracy of health and wellness claims made by products, services, and influencers to protect consumers from misleading information.</p> <p>Nutritional counseling with a tailored approach: Offering individualized counseling sessions allows nutritionists to address the unique concerns and doubts of Traditionalists, Trend followers, and Skeptics, helping them overcome barriers to success.</p>

Table 3: AI-summarizations of four aspects of the data from the iteration.

tive approach [15], leading many researchers to consider science to be the disciplined plugging of holes in the literature. The notion of the literature having holes to be plugged is a metaphor that author Moskowitz has heard for decades. It is a metaphor filled with implicit notions about how science should be done, how results should be analyzed, how truth is something which grows slowly, and incrementally.

The advent of AI and the ability to synthesize ideas from an unknown but large reservoir of knowledge opens up the potential of accelerating critical thinking. The papers dealing with AI and medical school teaching deal with the use of AI to diagnose disease. Why not let AI hypothesize about the nature of mind-sets, as was done here? The results make a great deal of sense, and this seemingly

simple request to assume three mind-sets leads AI to provide many 'answers' to posed and also to implicit.

Whether the answers provided by AI are correct or not remains a matter of experimentation. All things considered, however, the results from the request to AI do not seem outrageous. Rather, they seem as if they were developed by human researchers, a status which conveys upon them scientific legitimacy as an in-going hypothesis before the study is run.. Seen within that light, why not systematically explore the response to AI when given such minimalist instruction as were given here? All that the AI knew going in was the topic (Healthful weight loss that I can trust), and the conjecture that there were three mind-sets to be discovered. Everything emerged from the AI. If the limits to the AI efforts are realized and reported, there should be no compelling reason to avoid making AI a collaborator in early-stage research on a topic where scientific and imagination are involved.

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