

## Review Article

# Developer Goals for e-Commerce Startups: Applying AI-enhanced Mind Genomics to Thinking about Everyday Issues

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Received: May 07, 2023; Accepted: May 14, 2023; Published: May 21, 2023

## Abstract

Mind Genomics explored responses for an e-commerce website, focusing on a website with 'deep knowledge' of the user's preferences. To understand the application of Mind Genomics in a real-world setting, the timing of the setup and the fielding were limited to a total of 120 minutes. The data were collected in Spring, 2019. Four years later, newly developed AI analysis further interpreted the results. The initial analysis in 2019 deconstructed the ratings assigned by the respondents to vignettes, combinations of messages, describing the website. The respondents used an anchored 5-point scale, with the anchors 'buy' and 'not buy', respectively. The deconstruction by OLS regression revealed the contribution of each element to the 'buy' rating. Clustering the 46 respondents using the 16 coefficients uncovered three Mind-Sets: MS1-Help the client grow, MS2-Client Consulting, and MS3-Generate Leads. Four years later AI was applied to each group in the population, using six standard AI queries applied to all positive elements which were deemed to be strong drivers of 'buy.' This paper shows the possibility of rapid and insightful learning on new topics. Learning is promoted through experimental design coupled with human validation, and AI interpretation.

## Introduction

The computer, the Internet, the Internet of Things, and the focus on real-time optimization continue to empower our modern age. You can't go a single day without encountering a constant stream of ads and requests to buy. These advertisements often feature items that have already been purchased or viewed, as well as items left in a shopping cart. They are based on microsecond analyses of the shopping behavior of consumers. The analytic abilities are now so powerful that big data looks antiquated when compared to the small data generated constantly.

This paper explores what could be considered an important issue, the need to improve the flow of information between the customer and the online retailer. Online retailers function best with a large amount of data about their customers.

For roughly a decade, brands and retailers have been promoting their strategies for being "consumer centric." This means that they want to put the customer at the heart of all the work they do. In effect, this puts the consumer into the driver's seat, with consumers 'telling the brands' what brand experience to create for them. When it comes to analyzing consumer behavior and preferences, retail analysts are tasked with interpreting data from consumers - such as sales figures, consumer trends and satisfaction ratings to develop insights for managing the retail enterprise profitably.

Retailers, the brands they carry, and internet service providers are increasingly criticized by privacy advocates and regulators for using data collected from consumers to develop detailed profiles on each one to tailor the commercial experience and to precisely target their messages. In response, most data collectors now offer opt-out methods to limit the data collection, its uses, and sharing with third parties, but doing so is not obvious. There is a widespread growing belief or, at the very least, a loudly expressed recognition, that data created by an individual belongs to them and should be controlled by them, similar to the requirements set forth in the EU's 2018 General Data Protection Regulation [1].

Our world is inundated with data. As the speed and volume of data increase, our ability to form scientific questions, track trends, or subject the rapid pace of life to scientific inquiry is lost. Amidst massive amounts of data and massive optimization opportunities, it becomes increasingly hard to 'think slow'.

We are accustomed to the slow, majestic, ingrained, now entrenched system of hypothetico-deductive reasoning [2]. It is a basic concept that scientists, or even individuals, can 'advance' when they form a hypothesis and test it rigorously, trying to falsify the hypothesis. As technology speeds up the production of data and its acquisition, it is also necessary to accelerate knowledge and thought. In the harder sciences like biology and chemistry it may take exceptional creativity

to produce knowledge, but in the human-centered sciences this may not be a major problem. With the advancements in computer technology, some paradigm shifts may already be possible [3].

## Recurring Issues in the World of More Knowledgeable Websites

With the increasing excitement and, occasionally, almost manic positive responses about websites 'knowing people' comes the issue of privacy at the most obvious, but more deeply the morality of machines which have been programmed to learn about people. The topic of this paper is the desire of respondents for websites (viz., provider technology) to 'know them,' or perhaps the opposite, the fear that the machine may know too much, and the consequent loss of privacy. Some of this issue is one's own desire for privacy, but some of it is the 'morality' of machine knowledge about facts relevant to individuals, and the implications of the wide availability of such knowledge. The issue is not 'all or not' either, for with knowledge by websites of people comes the smoother operation of interactions, the reduction of annoying, and occasionally harmful friction.

## Mind Genomics: The Promise and Vision for the Future

Mind Genomics is a new, emerging science which traces back to three disciplines [4-8]. These are:

1. Experimental psychology which searches for the causes of human behavior. The specific area of experimental psychology giving rise to Mind Genomics is psychophysics, the discipline which searches for lawful patterns in between what is presented and what we perceive. For Mind Genomics that relation is between the words describing a situation and the judgment we say we would make.
2. Statistics, The respondent reads combinations of elements, messages, describing this ordinary situation, and rates the feeling on a scale provided by the researcher.
3. Consumer research, which examines how consumers make decisions in everyday life, in which we live, work, succeed or fail. The goal is not to develop a new theory or to disprove an existing one, though these noble endeavors are possible. The only goal is to make sense of these patterns.

It is important now to keep in mind that the effort is more in the world of 'hypothesis-generating' than in the world of 'hypothesis-testing.' Quite often researchers really have no hypotheses to test but are constrained to do the study as if it were guided by a hypothesis. Mind Genomics does not care about that. It is simply a tool to discover patterns that may be interesting regarding how people think.

The process of Mind Genomics is a simple one, beginning with the question of what do people do about the information they receive as they are instructed to make a decision? Typically, the respondent is presented with the situation, using a simple story, even a single sentence. It is the goal to find regularities and relations within nature. Such discoveries generate the raw material for understanding how people think. When these discoveries are amalgamated from well-done experiments and when they reach critical mass, they form a

coherent database, and in turn these coherent databases become the foundation of technology and science.

This study forms part of a new initiative in Mind Genomics which aims to massively accelerate the acquisition of information and insights for everyday life, including topics such as subjective feelings toward e-retailing, including 'smart websites.' Another motivation is to show, through a research program integrating artificial intelligence and systematized human testing, if the two can be used to reveal aspects of everyday life or even weak signals about changing attitudes.

This study was done in 2019 before the massive expansion of AI into the world of everyday consumer research analytics. The original study was done without any focus on what AI could add to the research effort, but rather focused on what people would want for a system in which they would give up their privacy. The actual data analysis reflects what people were thinking in 2019. The subsequent AI analysis, in turn, was done in the third week, of May 2024, with a view to what the data might mean for a business issue.

The project itself in each phase ran on an accelerated schedule. For the first part of the project, the actual research, the total time involved was less than three hours from start of the project (create the experiment) to the acquisition of analyzed data. For the second part of the project, the AI analysis of the results obtained four years before, the analysis took 30 minutes, consisting of an automated AI-driven reanalysis of the data tables. The actual study itself with people came shortly after the first experience integrating AI and Mind Genomic by hand, with AI providing the raw information first, that information transformed into the test stimuli [9]. The effort presented here moves the process in the opposite direction, with AI providing a second, deep analysis of results already obtained.

## The First Part of the Project - The Creation and Execution of the Survey with the Respondents

Mind Genomics is now scripted. It follows a templated process which reduces the "angst" of doing experiments as well as the time and effort required to collect data. Experience over a half century has shown that individuals are anxious when asked to "do science."

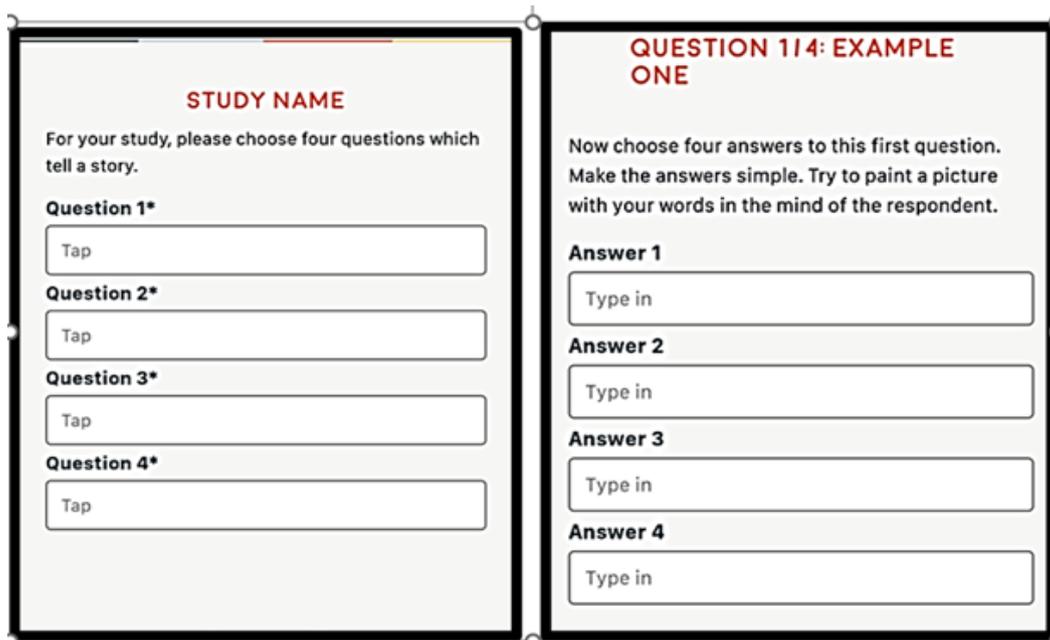
Mind Genomics scripts are designed to make sure that researchers can present the information in the correct format. In the actual experiment, relevant messages about a subject (called "elements") are combined into short, easily readable vignettes. A vignette consists of 2-4 messages. People then rate the combinations using a scale. Each respondent ends up rating 24 different vignettes. The vignettes are different for each respondent, but all the elements remain the same [10].

Mind Genomics' studies have been scripted to allow them to be run on a computer, smartphone, or tablet, with results available in a very short time. The information in Table 1 comes from the study, text taken from the actual input by the researcher, and put together in the report to document the study. The information in Table 1 is available within five minutes after the end of the study, as is the basic analysis. The AI summarization requires an extra 20-30 minutes after the end of the field work. (Table 1)

**Table 1:** Key information about the study provided by the Excel report.

Study Title	Code that actually matches your design. Fast and accurate.
Identification Number of the study:	05142019
Date when the study was run:	(05/14/2019-05/26/2023)
Number of respondents:	46
Purpose of the study:	To help digital marketers sell websites to their clients, while using our services to deliver their product.
Keywords:	white label, website development, lead generation, website optimization, website conversion rates

**Figure 1:** The templated request of four questions (left panel) and four answers as used by respondent to manually provide questions and answers.



The setup begins with naming the study and the instructions to provide four questions relevant to the topic of study. Researchers are asked to structure four questions in a way that they “tell a story,” and then provide four answers to each question. Figure 1 shows the template. In 2019, it took several hours to create the four questions for each question and four answers.

Since Mind Genomics became available to the public more than 10 years ago as a DIY (do it yourself) technology, there have been many instances where researchers felt overwhelmed with the task of creating the elements.

It is now possible to use artificial intelligence to generate questions. The researcher only needs to write a paragraph into the Idea Coach box in the Mind Genomics template and the AI will return 30 different questions. The Idea Coach technology, which was launched in 2022, was three years after this study was conducted.

Figure 2 shows three additional set up screen shots from BimiLeap. These include the orientation page (left panel), the rating scale (middle panel), and the researcher’s file information about the rationale for the experiment as well as key words for a later search (right panel).

The researcher can select the respondents’ source using the screen in Figure 3 following the study’s launch. This is done quickly within the BimiLeap software. Respondents are ‘sourced from’ a panel

provider that specializes in online surveys. There are a number of panel providers around the world. These panel providers maintain lists of respondents with their qualifications. They are individuals who have agreed, in exchange for a reward from the supplier, to take part in similar studies. The researcher does not need to know about the agreement. The panel provider only needs to find the right respondent.

Mind Genomics research can include elements (questions, answers, etc.) in many different languages and alphabets. However, the instructions on how to set up the study as it is done by the researchers are only available in a limited number of languages.

The actual experiment with the subject lasted about 3 minutes. The experiment starts with a brief orientation. The respondent then answers a few self-profiling questionnaires (Figure 4, bottom panel). Finally, the BimiLeap program presents 24 different vignettes that have been systematically created. The vignettes contain 2-4 elements, at most one answer to a single question but often no answer to one or two of the questions (see Figure 4, top panel).. It will be this very incompleteness of the combinations which allows the analysis by OLS (ordinary least-squares), and the estimate of absolute values for the coefficients.

The experimental design allows for the analysis of each individual’s ratings, respondent by respondent, as well as analysis of groups

Figure 2: Three setup screen shots for BimiLeap. These are the orientation page (left panel), the rating scale (middle panel) and the file information (right panel).

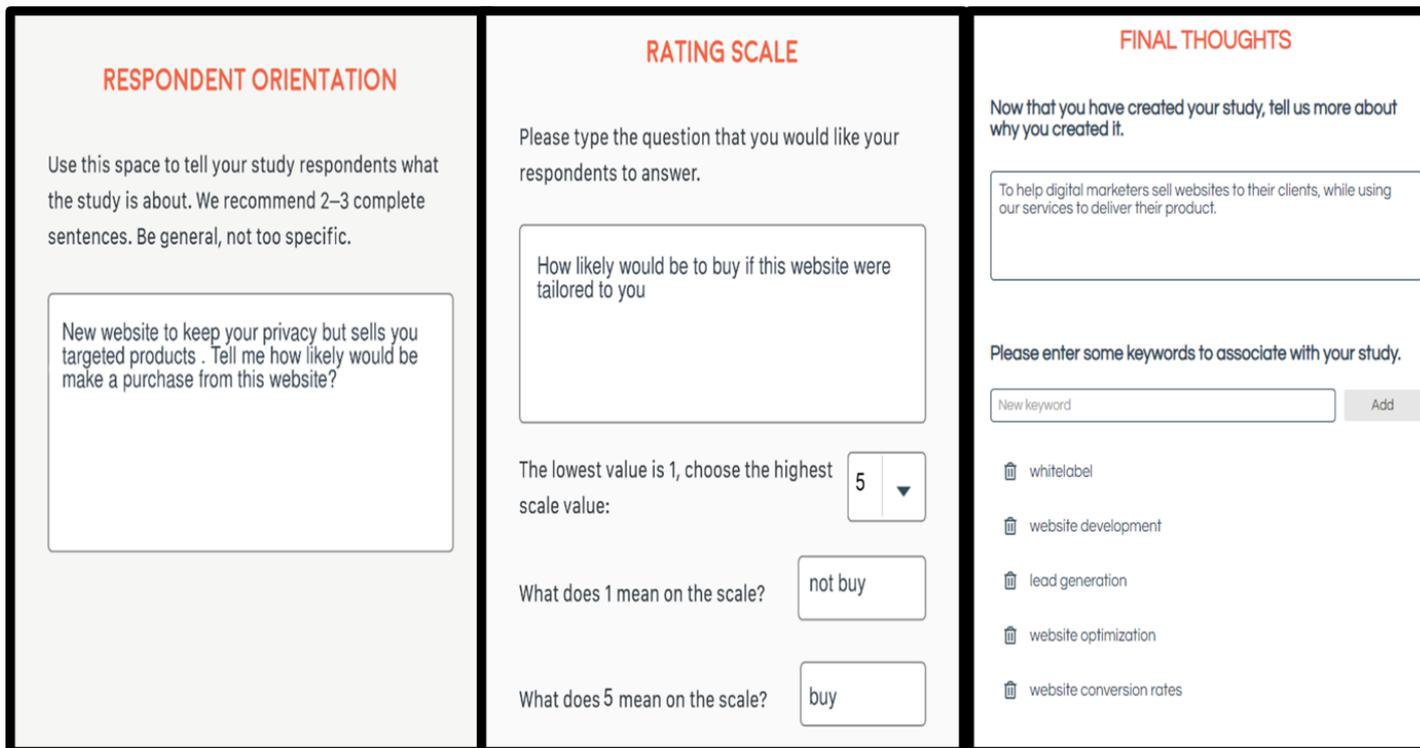


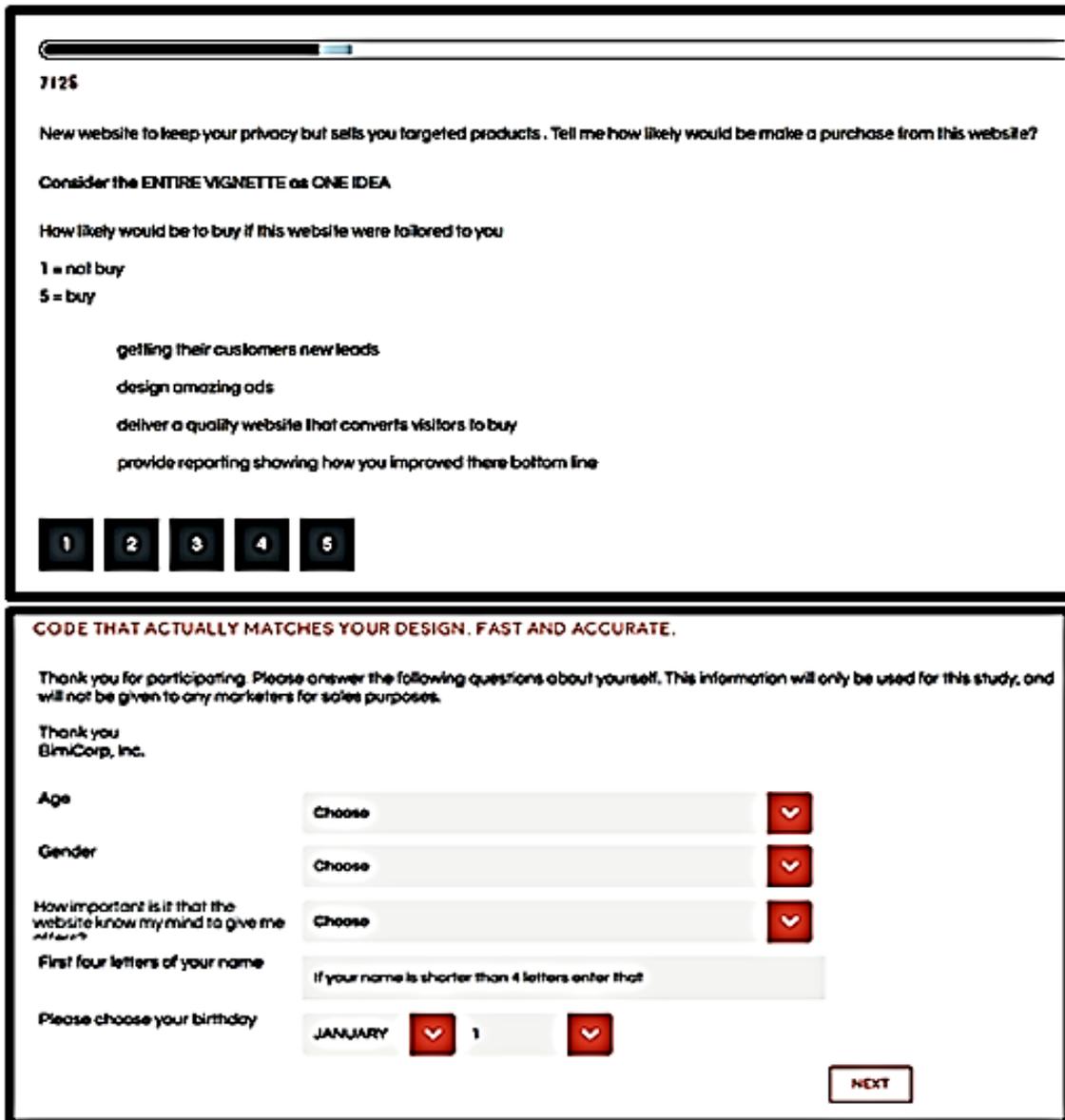
Figure 3: Sources of respondents selected by the researcher at the end of the project.

Now that you have published your study, you need respondents! You can choose to find respondents yourself, or you could use our sourcing services or a custom service to provide respondents for your study.

Remember, studies made through the BimiLeap platform are FREE. You pay only the per respondent processing fee. If you want your study privatized, there is an additional fee for that. Other costs may be incurred when you require the translation and programming of the standard respondent instruction pages into a new language, as well as handling fees for non-credit billing, or specialized recruiting of respondents.

- I want BimiLeap to provide respondents (general population) ?
- I want a custom sample of respondents from BimiLeap ?
- I want to use a third-party service or explore more custom sampling options ?
- I will source myself ?

Figure 4: Sample four-element vignette (top), and self-profiling classification (bottom).



comprised of any set of 46 respondents who participate in this study. The vignettes have been set up in a way that each person evaluates 24 unique vignettes. This design structure allows the researcher to explore different aspects of a problem without having to select which combination of elements gives the best chance for discovery.

### Database Structure, Analysis, and Reports – Total Panel

It is easy to analyze the data because the experiment design has been preselected in a way that all the 24 combinations of different sets are isomorphs. The vignettes are different, but the mathematical structure is identical. The researcher will have a powerful analytical tool that allows them to explore a large part of the “design space” (the combinations). More respondents, and therefore more people, means that more design space will be covered.

A simple database makes it possible to perform the analysis. The database is divided into 24 rows, each of which corresponds with one of the vignettes that a respondent has tested. The database for the study contains 1104 rows, or 46x24, of data. Each respondent contributes 24 rows to the database, one row for each of the 24 vignettes evaluated by that respondent. The Columns are allocated for bookkeeping (row number, how the respondent profiles herself or himself), a column for the order of rating of the 24 vignettes (1-24), then 16 columns to show absence or presence (value 0 or 1) of an element, and finally the assigned rating and the response time. The response time is the number of seconds between the appearance of a vignette and the answer.

The program then creates two binary variables: TOP (ratings 5, 4 transformed into 100) and BOT (ratings 1, 2 and 4 transformed into 100). BimiLeap adds a vanishingly small number of random numbers for each BOT or TOP value to create needed This prophylactic

measure ensures the required variability, even if the respondent rates all the vignettes as either 5 or 4 (all transformed TOP become 100) or 1 or 2 (all transformed BOT become 100).

Table 2 shows the parameters of the equation, expressed as:  $TOP = k_0 + k_1A_1 + k_2A_2 \dots k_{16}D_4$ . This equation can be estimated accurately because the OLS regression does not have any correlation issues between variables. The coefficients emerging from the OLS are absolute values, so a 5 has half of the value as a 10. It is crucial to understand this necessary property, which allows Mind Genomics to create a science. The researcher can quickly grasp the dynamics in the data revealed by the experimenter when the coefficients show the real magnitude of the effects.

As a side note, this vision of absolute coefficients is often counter-intuitive to ‘experts’ who believe that the respondent needs all the information from the different questions to make a decision. Admirable as that point of view is, which ends up presenting complete vignettes to each respondent, the results data is almost impossible to understand, because the absolute coefficients have no meaning. It is only differences which have meaning. There is no possibility of databasing the results unless the entire study is replicated. Only then do the coefficients have meaning.

Table 2 shows the results from the Total Panel, of 46 respondents, each rating a unique set of 24 vignettes. The Table shows us places for the 16 coefficients, along with the additive constant.

This constant indicates the likelihood of respondents saying ‘buy’ in the absence of any element in the vignette. The vignettes are

all designed with a minimum of two and maximum four elements. The additive constant can be thought of as a statistical correction factor. On the other hand, we can use this as a base, or a tendency for respondents to respond “buy”. This will help us gain this insight. Table 2 indicates that 45% of the responses will be 5 or 5, when they know what the system is, even when there are no specific elements to qualify the product. We could have measured this change over the years if we had done the same type of experiment.

In the interests of revealing patterns, the convention in this paper and others is to show only positive coefficients of value 2 or higher. Coefficients of 1, 0 and negative are of no interest. The low coefficients indicate that an element’s presence in a vignette “doesn’t add”. This does not necessarily mean the element detracts or is insignificant.

Eight out of 16 elements have coefficients greater than 1. All the rest generate coefficients that are 0 or negative. . However, only one element is really successful, “create amazing ads” with a coefficient of 6. Subgroups are likely to be hiding strong performers, as we shall soon see.

We now move to the AI interpretation of these results from the total panel. AI analysis should only be viewed as a set of tentative observations by a heuristic. AI can provide a quick answer before taking the time to analyze the entire dataset. The BimiLeap report has been upgraded to provide AI responses to the following six queries, using the coefficients for the key subgroup being summarized.

The following are the six queries.

**Table 2:** Elements for the Total Panel which drive TOP (Sounds interesting). Only elements with coefficients > 1 are shown.

	Group (Binary Ratings)	Total
	Base Size	46
	Additive Constant	45
	Question A: What is the typical problem faced by digital marketers	
A1	Acquiring new clients	
A2	Getting their customers new leads	
A3	Delivering results	
A4	A lot of competition	
	Question B: What do you do specifically that gives your prospects a wow factor	
B1	Offer value that No One else offers	3
B2	Deliver leads within the first week	
B3	Design amazing ads	6
B4	Low-cost leads	2
	Question C: What’s the biggest promise you can offer your client?	
C1	Get our clients good leads	2
C2	Deliver a quality website that converts visitors to buy	
C3	Provide quality content that engages readers	
C4	Provide long-term business growth which improves their bottom line	3
	Question D: How do you nurture your long-term relationships with your customer?	
D1	Deliver monthly newsletters and updates to their inbox	2
D2	Proactively call them to check if they are happy with results	
D3	Offer them advice on improving their products	3
D4	Provide reporting showing how you improved their bottom line	5

Interested in

Create a label for this segment:

Describe this segment:

Describe the attractiveness of this segment as a target audience:

Explain why this segment might not be attractive as a target audience

Which messages will interest this segment

These queries primarily consider moderate or high performing elements with coefficients greater than +5. The elements with coefficients below 4 are considered, but not relied upon.

The AI summarization of the data, based on the six queries appears in Table 3.

### Results from Self-profiling Questionnaire

The BimiLeap program instructed respondents to put themselves into one of four groups, based upon how they feel about an outside website having deep knowledge of oneself. Table 4 shows the pattern of coefficients generated by the two polar opposite groups, the first very

excited and positive about the situation, the second bothered. As one might expect, the additive constants are higher for the positive group, and much lower for the negative group. Furthermore, there are more strong-performing elements in the positive group. Table 4 shows the coefficients of the elements. Table 5 shows the AI analysis of the patterns.

### Dividing Respondents According to Mind-Sets Using the Coefficients

The final analysis of the data will be focused on creating Mind-Sets. These are groups of respondents that have been created by using the K-means Clustering Program based upon the similarity of the patterns made by their coefficients. We use the 16 coefficients whether they are positive or negative for clustering. The additive constant is not used in clustering [11].

BimiLeap. It generates two Mind-Sets at first, then three Mind-Sets. The Mind-Sets encompass all respondents. A person belongs to only one mind-set for the two mind-set solution, and again to only one mind-set for the three mind-set solution. The clustering results in meaningful groups that can be interpreted, despite the fact that the process is mechanical and mathematical.

**Table 3:** AI first scan and interpretation of the strong performing elements for the Total Panel.

Overall Panel - Top
Interested in: Design amazing ads; Provide reporting showing how you improved their bottom line;
Create a label for this segment: Market MaximizerS
Describe this segment: The description of attributes from the total sample of a research study does not provide enough information to accurately describe a specific segment. Additional data is needed to identify the characteristics, behaviors, and preferences of the target audience for advertising and reporting purposes.
Describe the attractiveness of this segment as a target audience: Based on the total sample of the research study, the target audience seems highly attractive for advertisement design and reporting purposes. The sample may have various demographic and psychographic attributes that can be used for creating customized, targeted, and personalized advertisements. Additionally, the availability of data can help in measuring the effectiveness of the ad campaigns and provide insights on how to further improve the bottom line. Hence, the target audience can be considered as an excellent opportunity for businesses to enhance their marketing strategies and achieve their objectives.
Explain why this segment might not be attractive as a target audience: The total sample of the research study consists of individuals who are primarily middle-aged (between 35-49 years old), educated (at least a bachelor's degree), and have a moderate to high income. They are primarily married or living with a partner and have children. These individuals are active on social media platforms and are interested in health and wellness, travel, and entertainment. While this segment may seem attractive as a target audience for businesses focused on health and wellness, travel, and entertainment, it may not be the most ideal for advertising and reporting purposes. This is because the sample is relatively large and diverse, making it difficult to pinpoint specific interests and behaviors that drive their purchasing decisions. Additionally, as a middle-aged demographic, this group may not be as susceptible to advertising as younger demographics or may have already established brand loyalty. As a result, businesses may want to consider targeting a narrower segment with more specific interests and behaviors to maximize the effectiveness of their advertising and reporting efforts.
Which messages will interest this segment? The total sample of the research study consists of individuals who are primarily middle-aged (between 35-49 years old), educated (at least a bachelor's degree), and have a moderate to high income. They are primarily married or living with a partner and have children. These individuals are active on social media platforms and are interested in health and wellness, travel, and entertainment. While this segment may seem attractive as a target audience for businesses focused on health and wellness, travel, and entertainment, it may not be the most ideal for advertising and reporting purposes. This is because the sample is relatively large and diverse, making it difficult to pinpoint specific interests and behaviors that drive their purchasing decisions. Additionally, as a middle-aged demographic, this group may not be as susceptible to advertising as younger demographics or may have already established brand loyalty. As a result, businesses may want to consider targeting a narrower segment with more specific interests and behaviors to maximize the effectiveness of their advertising and reporting efforts.
<ul style="list-style-type: none"> <li>- Highly diverse</li> <li>- Varied age range (18-50)</li> <li>- Majority are employed (full-time or part-time)</li> <li>- Different educational backgrounds</li> <li>- Wide range of incomes</li> <li>- Access to smartphones and other forms of digital technology</li> <li>- Interest in trying new products and services</li> <li>- Value authenticity and quality in brands they support</li> <li>- Significant portion are environmentally conscious and socially responsible</li> <li>- Strive for work-life balance and prioritize self-care</li> <li>- Open to engaging with advertisements that align with their values and interests</li> </ul>
<p>Potential messages that may interest this segment could play up the uniqueness and diversity of the group, while also emphasizing the importance of quality, authenticity, and social responsibility. Advertisements that tout the benefits of trying something new and innovative may also resonate with this audience. Highlighting ways in which your product or service can contribute to work-life balance and self-care could also be effective. Finally, leveraging digital channels and creating visually striking or interactive ads may help capture their attention.</p> <p>In terms of reporting, focus on metrics that demonstrate improved bottom line performance, such as increased sales, higher conversion rates, or improved customer retention. Tie these metrics back to specific tactics or strategies that were implemented in your advertising campaigns to demonstrate your impact on their business.</p>

**Table 4:** Elements which drive TOP (Buy) for the two key segments emerging from the self-profiling question: How important is it that the website know my mind to give me offers?

	Group (Binary Ratings)	I want them to know my mind	It bothers me
	Base Size	14	9
	Additive Constant	56	33
	Question A: What is the typical problem faced by digital marketers		
A1	Acquiring new clients		
A2	Getting their customers new leads	10	
A3	Delivering results		
A4	A lot of competition		
	Question B: What do you do specifically that gives your prospects a wow factor		
B1	Offer value that No One else offers		12
B2	Deliver leads within the first week	6	
B3	Design amazing ads	2	8
B4	Low-cost leads	5	4
	Question C: What's the biggest promise you can offer your client?		
C1	Get our clients good leads	7	4
C2	Deliver a quality website that converts visitors to buy	7	
C3	Provide quality content that engages readers		
C4	Provide long-term business growth which improves their bottom line	5	
	Question D: How do you nurture your long-term relationships with your customer?		
D1	Deliver monthly newsletters and updates to their inbox	12	
D2	Proactively call them to check if they are happy with results	8	
D3	Offer them advice on improving their products	12	
D4	Provide reporting showing how you improved their bottom line	4	4

Scan and interpretation of the strong performing elements by two self-proclaimed segments (want them to know my mind vs bothers me)

<p>How important is it that the website know my mind to give me offers?: I want them to know my mind - Top</p> <p>Interested in: Getting their customers new leads; Deliver leads within the first week; Low-cost leads; Get our clients good leads; Deliver a quality website that converts visitors to buy; provide long term business growth which improves their bottom line; Deliver monthly newsletters and updates to their inbox; Proactively call them to check if they are happy with results; Offer them advice on improving their products; Provide reporting showing how you improved their bottom line;</p> <p>Create a label for this segment: Small Business Lead Generation Solutions Seekers.</p> <p>Describe this segment: This segment is likely focused on obtaining new leads for their business and is interested in receiving high-quality leads quickly and at a low cost. They also prioritize having a website that is optimized for conversion, which they believe will contribute to long-term business growth and improved profitability. Regular communication through newsletters and updates is important to them, and they appreciate proactive outreach to ensure their satisfaction with results. Additionally, they value expert advice on how to improve their products and services, and they expect clear reporting demonstrating the impact on their bottom line.</p> <p>Describe the attractiveness of this segment as a target audience: The total sample of the research study is an attractive target audience for businesses that are interested in getting new leads and delivering them within the first week, as well as providing low-cost and high-quality leads. This segment is attractive because they are looking for a website that can convert visitors into buyers, which indicates they are actively seeking to grow their business and improve their bottom line. Additionally, this segment is interested in receiving monthly newsletters and updates, as well as proactive calls from the business to check if they are satisfied with the results. Furthermore, businesses that offer advice on improving products and provide reports showing how they have improved the bottom line will be particularly attractive to this segment. Overall, this segment represents a highly motivated and engaged group of potential customers who are seeking long-term business growth and improvement.</p> <p>Explain why this segment might not be attractive as a target audience: This segment might not be attractive as a target audience because their main focus is on receiving Low-cost leads and getting good leads that deliver quick results. They also prioritize short-term gains, such as getting new leads within the first week, over long-term business growth. This suggests that they may not be willing to invest in more expensive or long-term marketing strategies that may yield better results in the future. Additionally, their emphasis on receiving regular newsletters and updates may indicate a lower level of engagement or interest in actively participating in marketing efforts. Overall, this segment may not be as receptive to comprehensive or tailored marketing solutions and may prioritize cost and immediate results over long term growth and development.</p> <p>Which messages will interest this segment? This segment is likely interested in messages about getting new leads, delivering leads quickly and at a low-cost, delivering quality websites that convert visitors to buy, providing long term business growth that improves their bottom line, and proactively checking in with them to ensure they are happy with the results. They may also be interested in receiving monthly newsletters and updates and receiving advice on improving their products. Messages about providing reporting showing how their bottom line has been improved may also be of interest.</p> <p>How important is it that the website know my mind to give me offers?: It bothers me - Top</p> <p>Interested in: Offer value that No One else offers; Design amazing ads; Low-cost leads; Get our clients good leads; Provide reporting showing how you improved their bottom line;</p> <p>Create a label for this segment: Value-Driven Lead Generation with Analytics Focus</p>
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Describe this segment: The segment of the total sample in this research study is likely comprised of businesses or organizations that prioritize unique value propositions and effectively communicating that to their target audience through visually appealing advertisements. They may also prioritize generating leads at a low cost, as well as ensuring those leads are of high quality for their clients. Additionally, this segment values measurable results and would likely appreciate a service provider who can provide reports demonstrating the impact of their efforts on the client's bottom line.

Explain why this segment might not be attractive as a target audience:  
 The segment described is focused on the service provider's ability to offer unique value propositions, design effective advertisements, generate Low-cost leads, and provide reporting on how they have improved their clients' bottom line. While these attributes may be desirable for some businesses, this segment may not be an attractive target audience for several reasons.

Firstly, the segment seems to be solely focused on the service provider's offerings without considering the specific needs or goals of the businesses they are targeting. This lack of customization may not appeal to businesses that prioritize personalized solutions.

Secondly, the emphasis on Low-cost leads may not align with the goals of all businesses. Some companies may prioritize high-quality, targeted leads over cheap options that may not necessarily result in conversions.

Finally, the focus on bottom-line reporting may not be relevant to all businesses, particularly those that prioritize other metrics such as brand awareness or customer satisfaction.

Overall, while the attributes described may appeal to some businesses, the lack of customization and narrow focus may limit the appeal of this segment as a target audience.

Which messages will interest this segment? Messages that emphasize offering value that no one else offers, designing amazing ads, providing Low-cost leads, getting clients good leads, and providing reporting showing how the company improved their bottom line will be of interest to this segment.

**Table 5:** Elements which drive TOP (Buy) for the three Mind-Sets, emerging from k-means clustering of all the element coefficients from the 46 respondents.

Group (Binary Ratings)	MS1 - Help client grow	MS 2 - Client consulting	MS3 - Generate Leads
Base Size	16	12	18
Additive Constant	30	50	54
Question A: What is the typical problem faced by digital marketers			
A1 Acquiring new clients		2	4
A2 Getting their customers new leads	5	8	
A3 Delivering results		12	
A4 A lot of competition		2	
Question B: What do you do specifically that gives your prospects a wow factor			
B1 Offer value that No One else offers			18
B2 Deliver leads within the first week			7
B3 Design amazing ads	6		17
B4 Low-cost leads	3		12
Question C: What's the biggest promise you can offer your client?			
C1 Get our clients good leads	15		
C2 Deliver a quality website that converts visitors to buy			
C3 Provide quality content that engages readers	10		
C4 Provide long-term business growth which improves their bottom line	8		
Question D: How do you nurture your long-term relationships with your customer?			
D1 Deliver monthly newsletters and updates to their inbox	15		
D2 Proactively call them to check if they are happy with results	12		
D3 Offer them advice on improving their products	12	10	
D4 Provide reporting showing how you improved their bottom line	22		

Table 6 lists the elements that make up the successful performance of the Three-Mind-Solution. In order to save space, the two-mind solution is not included. The AI results are shown in Table 7, emerging after applying the six AI queries to the Mind-Sets.

### Understanding Performance Using an Index Number (IDT, Index of Divergent Thought)

Researchers in many fields ask the same question: "How did we perform?" With Mind Genomics and AI still at an early stage, but

available worldwide at the touch of a button, it becomes a matter of whether the research produced anything valuable. It is important to note that the notion of "value" does not refer to personal worth of data for the researcher or to reproducibility of science. Instead, for Mind Genomics we ask whether or not the study produced any high-performing elements. When we find strong elements, there's a link between the element and rating questions. In these studies, the researchers are looking for this link. In those elements, the issue at hand can be better understood.

**Table 6:** AI interpretation of the strong performing elements) by AI for the three-Mind-Set solution.

MS1 – Help client grow
Interested in: Getting their customers new leads; Design amazing ads; Get our clients good leads; Provide quality content that engages readers; Provide long-term business growth which improves their bottom line; Deliver monthly newsletters and updates to their inbox; Proactively call them to check if they are happy with results; Offer them advice on improving their products; Provide reporting showing how you improved their bottom line;
Create a label for this Mind-Set: Proactive Growth-Oriented Clients
Describe this Mind-Set: The Mind-Set appears to be comprised of businesses or individuals who are focused on improving their bottom line through various means such as lead generation, designing effective advertisements, providing engaging content, and offering long-term business growth. They value regular communication and proactive outreach from their service providers, seeking advice on ways to improve their products and operations. This Mind-Set also values transparency and data-driven reporting to show how their service providers have contributed to their business success.
Describe the attractiveness of this Mind-Set as a target audience: This Mind-Set of the total sample appears to be highly attractive as a target audience. They are focused on obtaining new leads, creating engaging content, and achieving long-term business growth. They value communication and transparency, as evidenced by their desire to receive monthly newsletters and updates, as well as reporting on bottom line improvements. Additionally, they appreciate proactive outreach and advice on how to improve their products. These characteristics suggest that they are invested in their business and actively seeking ways to improve and succeed, making them a promising potential customer base.
Explain why this Mind-Set might not be attractive as a target audience: This Mind-Set might not be attractive as a target audience because they are not clearly defined and do not have a specific industry or demographic. Their interests are also very broad and varied, making it difficult to create targeted marketing campaigns. The mentioned attributes are also focused on the needs of businesses rather than individuals, so it may be challenging to appeal to a specific target audience within this group. Additionally, there is no indication of their budget or willingness to pay for these services, making it difficult to prioritize them as potential clients.
Which messages will interest this Mind-Set? Mind-Set is likely interested in messages that focus on providing new leads and improving their bottom line through quality content and effective advertising. They may also be interested in receiving regular updates and being proactively contacted for feedback and advice on product improvement. Messages that highlight the ability to deliver measurable results through reporting and long-term business growth could also be appealing.
MS2 Client Consulting
Interested in: Getting their customers new leads; Delivering results; Offer them advice on improving their products;
Create a label for this Mind-Set: "Results-Oriented Clientele"
Describe this Mind-Set: The total sample in the research study is a group of customers who are looking for providers who can help them with new leads, deliver tangible results, and provide guidance for improving their products. They value proactive and insightful support that can help them achieve their business goals. This Mind-Set is likely to be focused on growth and innovation, and willing to invest in expertise and resources that can help them succeed. They are likely to be responsive to solutions that are tailored to their needs and are committed to building lasting relationships with their providers.
Describe the attractiveness of this Mind-Set as a target audience: The Mind-Set of customers who are interested in getting new leads, Delivering results, and receiving advice on improving their products is highly attractive as a target audience. These customers are proactive and goal-oriented, seeking tangible outcomes from their business efforts. They are likely to value innovation and creativity and are open to new ideas and approaches. Their willingness to seek advice and support indicates a desire for continuous improvement, making them a promising audience for businesses offering products and services in this area. Moreover, their focus on results and outcomes suggests that they are willing to invest resources in achieving their goals, making them potentially lucrative customers for businesses. Overall, this Mind-Set represents a high-potential target audience for businesses looking to cater to their needs.
Explain why this Mind-Set might not be attractive as a target audience: Based on the given attributes, it seems that the total sample of the research study is a diverse group with various interests and needs. However, this Mind-Set might not be attractive as a target audience for businesses because it does not provide a clear focus or direction. The group's interests seem to be too broad, without a clear indication of their specific needs and preferences. Additionally, the group may not be willing to invest the necessary time, money, and effort to achieve the desired results, making it less profitable for businesses that target this group. Therefore, businesses may prefer to focus on a more specific and defined audience with clear needs and more significant potential for growth and profitability.
Which messages will interest this Mind-Set? This Mind-Set will be interested in messages that focus on Delivering results and offering advice on how to improve their products. They are likely looking for a solution to generate new leads and will be attracted to messaging that highlights the effectiveness of the service. Therefore, messages that emphasize the benefits of the service in terms of increased lead generation and actionable insights to improve their business are likely to appeal to this Mind-Set. Examples of such messages include "Our service delivers results that will drive growth to your business," "Let us help you find new customers with our lead generation solutions," and "Get expert advice on improving your products and growing your business."
MS3 – Generate Leads
Interested in: Acquiring new clients; Offer value that No One else offers; Deliver leads within the first week; Design amazing ads; Low-cost leads;
Create a label for this Mind-Set: High Value Lead Generation Seekers
Describe this Mind-Set: The Mind-Set is likely composed of individuals or businesses who are looking for a competitive edge in Acquiring new clients. They value offering something unique and want to stand out from their competitors. They also prioritize quick turnaround time and value providers who can Deliver leads within the first week. Additionally, they place value on the quality of ad design and want their campaigns to look visually impressive. Cost is also a factor for this Mind-Set, and they are interested in sources that can provide them with leads at a low-cost.
Describe the attractiveness of this Mind-Set as a target audience: Based on the given attributes, this Mind-Set of the total sample is highly attractive as a target audience. They are interested in Acquiring new clients, which suggests that they are actively seeking ways to generate new business and grow their customer base. Additionally, they are looking for value that no one else offers, which implies that they are willing to invest in unique or innovative solutions. The fact that they prioritize the delivery of leads within the first week is also an important consideration, as this suggests that they have an urgent need for new business opportunities. Furthermore, their interest in designing amazing ads indicates that they value high-quality marketing content and are likely willing to invest in visually striking campaigns that effectively capture the attention of their target audience. Finally, their preference for Low-cost leads is a further indication of their business savvy - they are looking for solutions that offer a strong return on investment and will help them maximize their marketing budget. Overall, this Mind-Set is highly attractive as a target audience for any business that can provide innovative solutions, fast results, and cost-effective lead generation strategies.
Explain why this Mind-Set might not be attractive as a target audience: Based on the given attributes, it is possible that this sample of the research study does not represent a desirable target audience for certain businesses. The first attribute "Acquiring new clients" is broad and generic, as most businesses are interested in Acquiring new clients. Thus, it does not help in identifying a specific group of potential clients who might be interested in the particular products or services being offered. The second attribute "Offer value that No One else offers" is ambitious but lacks specifics. Without knowing what value is being offered, it is difficult to judge whether this group would be interested in the product or service, or if they are willing to pay a premium price for it. The third attribute "Deliver leads within the first week" is focused on a short-term goal of gaining leads quickly. While this could be important for certain businesses, it might not be a significant factor for others who may be more interested in building long-term relationships with potential clients. The fourth attribute "Design amazing ads" suggests that the sample might be more interested in the creative aspects of marketing rather than the potential benefits of the products or services being offered. This might be less appealing to businesses looking for more concrete metrics such as customer acquisition costs or return on investment. The fifth attribute "Low-cost leads" might indicate that this target audience is more price-sensitive and might not be willing to pay a premium for a particular product or service. This might not be ideal for businesses with higher-end products or services that cannot be sold at low prices. Overall, this Mind-Set might not be attractive as a target audience for certain businesses based on the general nature of their interests and preferences.

Which messages will interest this Mind-Set?  
 This Mind-Set is likely interested in messages that highlight the value and unique offerings of a business, as well as their ability to acquire new clients and deliver leads quickly. They may also be interested in messages that emphasize Low-cost leads and the ability to design effective ads. Possible messaging could include:  
 - Discover the value that sets us apart from the competition and start Acquiring new clients today!  
 - Don't settle for basic leads - get the best with our exclusive, low-cost options that deliver results fast.  
 - Our talented team of designers will help you create amazing ads that will capture attention and drive conversions.  
 - Launch your marketing campaign with confidence knowing that our leads are guaranteed to deliver results within the first week.  
 - Get the edge over your competitors with our value-packed offerings that no one else can match.

**Table 7:** The IDT, Index of Diverged Thought, showing the performance of the elements, and thus the strength of the thinking behind the specific Mind Genomics study.

	Total	Mind-Set 1 of 2	Mind-Set 2 of 2	Mind-Set 1 of 3	Mind-Set 2 of 3	Mind-Set 3 of 3
Base (number of respondents in this group)	46	26	20	16	12	18
Acquiring new clients			9		2	4
Getting their customers new leads	1		11	5	8	
Delivering results			11		12	
A lot of competition			1		2	
Offer value that No One else offers	3	8				18
Deliver leads within the first week	0	5				7
Design amazing ads	6	14		6		17
Low-cost leads	2	9		3		12
Get our clients good leads	2	7		15		
Deliver a quality website that converts visitors to buy				1	1	
Provide quality content that engages readers				10	1	
Provide long-term business growth which improves their bottom line	3	4	1	8	1	
Deliver monthly newsletters and updates to their inbox	2		5	15		
Proactively call them to check if they are happy with results			3	12		
Offer them advice on improving their products	3		8	12	10	
Provide reporting showing how you improved their bottom line	5	3	5	22		
Sum Total of All Positive Coefficients	27	50	54	109	37	58
Average of All Positive Coefficients (sum coefficients/base)	0.6	1.9	2.7	6.8	3.1	3.2
Number of respondents in the column (in the subgroup)	46	26	20	16	12	18
Weight = Proportion of the respondents in the subgroup	0.33	0.19	0.14	0.12	0.09	0.13
Weighted Total (Weight x Sum Total of All Positive Coefficients)	8.91	9.5	7.56	13.08	3.33	7.54
Final Score = sum of weighted total	49.92					

We present IDT Index of Divergent Thought as part of our effort to “systematize” the use of Mind Genomics, in an era of simple-to-use AI-powered techniques. IDT’s objective is to determine the effect of elements. IDT produces a simple, indexed result. This is shown in Table 8. When we divide the study into six groups, each sum of positive coefficients for that group is weighted by the relative number of respondents for that group. The six groups are Total, Mind-Sets 1 & 2 for the 2-Mind-Set solution, and Mind Sets 1, 2, & 3 for the 3-Mind-Set solution. The IDT is the weighted sum of positive coefficients. The weight is the ratio between the respondents per group and the total of 138.

The IDT by itself is simply an index number about how well the elements performed. With continuing use of the IDT as a metric, it may become possible to measure the degree to which a person grows in the ability to think creatively. One could imagine charting the IDT value for a person or group of people as they are challenged to think

through various problems. The IDT gives us a way of measuring the ‘strength’ of alternative efforts to deal with the same issue, with different issues, after teaching interventions, and so forth. The alternatives may be the same researcher over time, the performance of studies done by individuals vs. those done by collaborating groups, and so forth. The IDT is objective, a simple index quickly calculated as part of the report to the researcher.

### Discussion and Conclusions

The Mind Genomics method has been used to investigate the decision-making process for the world of the ‘everyday.’ Rather than focusing on topics of deep significance and with a long history of investigation, the researcher using Mind Genomics investigates simpler problems, such as what does a person want from a website which ‘knows’ the user. It is within that world view that the current study was done.

What emerges from Mind Genomics is far more than a simple snapshot of human decision making at the level of the concrete issue. One can sense from the use of commonplace features as elements that behind these everyday statements lay an entire universe of motivations, a universe that might totally disappear or at least lose its vitality if the statement were couched in the general, rather than in the specific. It is the richness in the meaning of everyday experience which provides deep learning. In other words, Mind Genomics provides emotion-rich, philosophically rich metaphors that ordinary, academic language cannot.

Armed with that point of view the paper no longer talks only about websites which know the person. Rather, the paper talks to the issue of emotional responses to different ways of weighting information to decide. Different ways of responding to recommendations from a 'machine' and the concern with the nature and trustworthiness of machines which know the person. The issues lose a bit in the translation when they are stated in the form of generalities, but create immediate, palpable internal sensations when they are described by daily, identifiable events, viz., by realistic metaphors.

Beyond the actual data from the Mind Genomics exercise, however, lies the second layer of AI analysis. The AI process was told to look at the elements in general, especially those with coefficients of +6 or higher, along with the additive constant, and summarize the results through six queries. The objective of the exercise was to publicly present the data, and then the AI interpretation of the data, untouched by human hands. No attempt was made to structure the output of the AI, this effort being among the first to attempt a machine-level summarization. It is likely that we will see significant advances in 'insights and languages, as the ever-evolving AI amplifies the structured outputs of Mind Genomics experiments.

## References

- GDPR.EU (2023) "What is GDPR, the EU's new data protection law?," <https://gdpr.eu/what-is-gdpr/>, accessed May 28 (2023).
- Sprenger J (2011) Hypothetico-deductive. confirmation. *Philosophy Compass* 6: 497-508.
- Kim TW, Mejia S (2019) From artificial intelligence to artificial wisdom: what Socrates teaches us. *Computer* 52: 70-74.
- Longoni C, Bonezzi A, Morewedge CK (2019) Resistance to medical artificial intelligence. *Journal of Consumer Research* 46: 629-650.
- Longoni C, Cian L (2022) Artificial intelligence in utilitarian vs. hedonic contexts: The "word-of-machine" effect. *Journal of Marketing* 86: 91-108.
- Manikonda L, Deotale A, Kambhampati S (2018) December. What's up with privacy? User preferences and privacy concerns in intelligent personal assistants. In: Proceedings of the (2018) AAAI/ACM Conference on AI, Ethics, and Society 229-235.
- Ashoori M, Weisz, JD (2019) In AI we trust? Factors that influence trustworthiness of AI-infused decision-making processes. *arXiv preprint arXiv: 1912: 02675*.
- Lara F, Deckers J (2020) Artificial intelligence as a socratic assistant for moral enhancement. *Neuroethics* 13: 275-287.
- Zemel R, Choudhuri, SG, Gere A, Upreti H, Deitel Y, Papajorgji P, Moskowitz H (2019) Mind, Consumers, and Dairy: Applying Artificial Intelligence, Mind Genomics, and Predictive Viewpoint Typing. In Current Issues and Challenges in the Dairy Industry. IntechOpen.
- Gofman A, Moskowitz H (2010) Isomorphic permuted experimental designs and their application in conjoint analysis. *Journal of Sensory Studies* 25: 127-145.
- Likas A, Vlassis N, Verbeek, JJ (2003) The global k-means clustering algorithm. *Pattern Recognition* 36: 451-461.

### Citation:

Wingert S, Moskowitz HR, Rappaport SD, Deitel Y (2023) Developer Goals for e-Commerce Startups: Applying AI-enhanced Mind Genomics to Thinking about Everyday Issues. *Psychol J Res Open* Volume 5(5): 1-12.