https://doi.org/10.33805/2576-8484.175
Volume 4 Issue 1 | PDF 175 | Pages 13

EDELWEISS PUBLICATIONS
OPEN ACCESS

Edelweiss Applied Science and Technology

Review Article ISSN: 2576-8484

Communicating to Drive Sustainability-A Worked Example with Wind Power

Howard Moskowitz[1*], David JohnThistle[2], George Ortega[3], Judah Aber[3] and Attila Gere[4]

Affiliation

[1]Mind Genomics Associates, Inc., White Plains, New York, USA
[2]The Thistle Foundation, the Woodlands, Texas, USA
[3]White Plains, New York, USA
[4]Szent Istvan University, Budapest, Hungary

***Corresponding author:** Howard Moskowitz, Mind Genomics Associates, Inc., White Plains, New York, USA, E-mail: mjihrm@gmail.com

Citation: Moskowitz H, Thistle JD, Ortega G, Aber J and Gere A. Communicating to drive sustainability-a worked example with wind power (2020) Edelweiss Appli Sci Tech 4: 19-32.

Received: Jan 30, 2020
Accepted: Mar 11, 2020
Published: Mar 17, 2020

Abstract

We demonstrate the knowledge-development power of the emerging science of Mind Genomics, doing so by a study of appeals to fund a wind-power project in Texas. The paper focuses on the method, analyses, results, and application of the findings, showing what can be learned and implemented with the easy-to-do and affordable, iterated studies offered by Mind Genomics. Two groups of respondents evaluated 24 vignettes, comprising different combinations of 16 messages about wind power opportunities and benefits for the State of Texas. The first group of 51 respondents evaluated vignettes about wind-power, rating the vignettes on regarding whether they understood the messages and would recommend what they read. The second group of 50 respondents estimated the unit price of a share of stock based upon the messages in the vignette. The analysis linked the ratings to the presence/absence of each message. Two new-to-the-world mind-sets emerged, those focusing on the benefits to Texas, and those focusing on what specific actions must be taken. The mind-sets suggest different ways that people have of dealing with information in which appeals are embedded. Study 2 reaffirmed these two mind-sets when economic judgments were substituted for opinions. The paper incorporates the PVI, the personal viewpoint identifier, a technology to assign a new person to one of these two mind-sets, thus expanding the scope of the research from a study of a single population to the possible identification of the mind-sets in the general population around the United States or even around the world.

Keywords: Wind-power, nuclear energy, economic sustainability and electrical power.

Introduction

The focus of these early years of the 21st Century's second decade is clearly on sustainability, whether that is consideration of weather, or crops, of safety and even of shoreline disappearing, stranding hundreds of millions, perhaps many more. Ask most people about their feeling towards sustainability, without any other modifying factor such as cost or dislocation, and the answer will be obvious in virtually all cases. Unless the person has been fast asleep for decades, the likely answer is a concern, one way or another, with sustainability, and the recognition that on planet earth 'something is changing, and not necessary for the better.'

Hundreds of books, thousands of academic research papers, and uncountable newspaper and magazine articles are developed to sustainability [1]. A great deal of the information that people receive is of a general sort, with no specific call to action. Occasionally, however, a specific issue emerges in sustainability, one which requests the individual to donate money for support, or at least to sign a petition. Despite the noble intentions of those who send these messages, we do not know the degree to which the specific messages can be understood, and whether the messages, after being understood, are sufficiently strong to be acted on. The specific topic for this Mind Genomics cartography is wind-power, specifically wind-power in Texas. The study was occasioned by the opportunity to create an energy farm which could produce a great deal of the necessary energy for Texas. Wind-power itself is a key source of energy, a source which could provide uninterrupted energy to consumers [2,3]. Suggest that "wind and nuclear energy power plants have the highest sustainability indicators", addressing many the concerns about such uninterruptable energy. Despite its promise, however, wind-power has not performed well.

There is a strong positive feeling about wind-power, but only a moderate success rate. A great deal of the issue with wind-farms can be traced to the refusal of people to have wind-farms near their problem, which call "NIMBY", or 'not in my back yard' [4]. The issue of NIMBY may be thought to affect only those countries with richer landowners, where the presence of wind power turbines may be unsightly and lower property. Yet NIMBY with respect to public opinion occurs even in poorer countries like China, in rural areas [5]. In China, NIMBY can be rephrased as 'not in my backyard, but not far from me either.'

Acceptance of wind power because of the towers is least when the towers are located in one's village, but acceptance increases when the towers are located in a different rural area or in towns. The specific study reported here was occasioned by the opportunity to purchase a very large tract of undeveloped land, for sale in Texas. The objective of the study was to identify the specific messages that one might use with citizens of Texas, those messages presenting information about the opportunity to help Texas with its energy needs. The messages which were 'successful' in the study were to be considered for use in a public campaign to raise the necessary money to purchase the land.

The study itself emerges from three areas, energy and climate concern (economic sustainability), 'giving' (the research about appeals for worthy causes), and 'market research' (specifically approaches to understand the mind of the person who is asked to donate.) All three topics have extensive histories, with a variety of references summarizing the general topics of sustainability [6]. As our final point of introduction, we note that the study deals with a real, specific occasion, emerging publicly in the second half of 2019. The study was occasioned by the plan to prepare a campaign, to be conducted by author Thistle. The hope was that the research would reveal extremely strong messages that could be incorporated into the messaging to raise the necessary monies for the land purchase.

Method

The Mind Genomics approach has been presented in detail in previous papers. The approach follows a series of well-choreographed steps, with the goal to extract patterns of information from the ratings, these patterns revealing a linkage between the responses and the specific elements, or pieces of relevant information [7-9].
Part 1: Setting up the study, executing it, receiving the modeled data in a report and in data tables

Identify the overarching topic: For this study the overarching topic is the situation and the opportunity to forward the technology of wind-power by the purchase of available land, and the construction of wind turbines which convert wind power to electrical power. The topic focuses on Texas, where the land is available for purchase.

Tell a specific story about the topic, formulated in the form of questions: (Table 1) shows the four questions. The questions will not be shown in the research but are necessary in order to drive the creation of statements, answers to the question.

For each question create four answers which address the specific question: The answer may be grounded in fact, may be a hypothesis about what could happen, or may be totally fanciful yet relevant in terms of connection to the question. Make every effort to generate simple phrases, easy to read, easy to understand. Avoid mental tasks such as if/then, and so forth. All phrases should be written in a simple, declarative form, with few if any subordinate phrases. The strategy to develop these questions (and answers) follows the Socratic way of thinking.

Experimental Design: Use a underlying plan, the experimental design, to specify 24 combinations of the answers, the 24 vignettes, with the property that each of the 16 elements is statistically independent of every other element, and that each element appears equally often across the 24 vignettes. The experimental design may be likened to a set of 24 recipes. The number 24 was arrived at by creating alternative experimental designs in which the elements remain the same, but the combinations of elements changed. The permutation scheme generates several hundred of these 24-vigette designs, all structurally the same, but different in their specific combinations. Indeed, for up to 100 different designs, more than 95% of the vignettes are unique allowing the design to span the range of different combinations.

Question A: What is the energy situation today in Texas?	
A1	Situation: The opportunity exists to purchase a 70 thousand acre Texas Ranch.
A2	Situation: Texas needs more electrical power right now
A3	Situation: Texas need for power relentlessly increasing daily.
A4	Situation: Clean energy sources are needed now more than ever
Question B: Why is what we are asking for needed?	
B1	Problem: Texas has a negative draw on its power grid … more power needed.
B2	Problem: Texas has declared a power grid emergency several times already this year.
B3	Problem: More people each week move to Texas … need more energy for them and for the state utilities
B4	Problem: Much more electrical energy will be needed in Texas for the state's future for its people
Question C: What is the public benefit?	
C1	Public Benefit: The people of Texas will benefit from more power.
C2	Public Benefit: Clean sustainable energy
C3	Public Benefit: More electrical energy to help Texas grow and people prosper
C4	Public Benefit: Fair-paying jobs will be created in Texas
Question D: What is needed NOW?	
D1	Need: $40 million dollars for land acquisition.
D2	Need: $2.2 million dollars for each Windmill and installation …200 windmills total $440 million dollars.
D3	Need: Solar panels and electrical infrastructure costs.
D4	Need: Employee initial start-up costs-security and engineers

Table 1: The four questions and the four answers to each question.

Create a meaningful rating question: Select a rating question, anchored at both ends. Minimize the number of scale points, choosing 3,5,7 or 9 scale points. Early studies with Mind Genomics worked with 9-point scales. More recent studies have worked with 5-point scales. Anchor the scales at the end, and if relevant, anchor each scale point. Each scale point was anchored in this study, in order to create two scales, one for 'understanding the message', one for 'recommending the message.'

Create an introduction to anchor the experiment: Create a simple, very short, 1-2 line introduction to the study. The introduction or orientation tells the respondent what to expect, or more correctly, instructs the respondent to read the vignette (aforementioned combination of elements), treat the vignette as one idea, and assign a rating to the full vignette. The less said to the respondent at this stage the better. The real information will come from the elements themselves.' The short introduction does not bias the respondent.

Invite respondents to participate: In this study the respondents were recruited from individuals participating with Luc.id. These respondents had preregistered to participate and were totally unknown to the researchers, other than fitting the specifications about age and gender. The standard age was constrained to be 18 years old or older. No restrictions were put upon the precise distribution of the ages. The market was to be Texas, since the issue of wind power and available land was to be in Texas.

Execute the experiment: Run the sort experiment on the Internet, with each respondent proceeding at the pace most convenient. Across most studies the experiment takes approximately 4-5 minutes.

Receive the full basic analysis in a PowerPoint® and in an Excel® file within one minute of the end of the on-line experiment. The time for the experiment with 50 respondents is approximately one hour, so the full results, except for the additional analyses, are available in approximately one hour. The analysis can then proceed to a further 'deep dive' into the data. Most of the modeling and clustering (segmentation) is already complete.

Part 2: How the data are analyzed by the Mind Genomics 'machine' (BimiLeap).

- The preliminary processing converts all scale points dealing with 'Understand' to 100 (ratings of 3 and 5 respectively). The other three scale points, dealing with 'Not understand, (ratings of 1, 2 and 4 respectively) are converted to 0. The same process converts all scale point dealing with 'Recommend' to 100 (ratings of 4 and 5). The other three scale points, dealing with 'Not recommend (ratings of 1,2 and 3, respectively) are converted to 0. After the transformation, a small random number (<10-5) is added to all the transformed data, to ensure that the OLS regression will not 'crash'.
- The first analysis uses OLS (ordinary least-squares) regression to the relate the presence/absence of the elements to the one key dependent variable, specified above, 'Recommend' (1,2,3 transformed to 0,4,5 transformed to 100). The analysis does so at the level of the individual respondent. And an example, for Study 1 this modeling generated 51 equations, showing the relation between the 16 elements and the response 'recommend - yes.' The data from this first model at the individual respondent level will be used in the analysis used to divide the respondents into two mind-sets, groups with different mind. The division is done by clustering [10]. The approach is spelled out in detail in recent papers [11].
- The data now comprises results for Total Panel, Gender (male versus female), Age (under 29, 30 and older) and two emergent mind-sets based upon recommendations. In all there are seven groups, five specified by the respondent (age, gender, total), and two specified by the pattern of results, mind-sets). Each respondent can thus be assigned to an age group, a gender group, a mind-set, and of course to the total panel, by definition.
- The OLS regression now creates an equation relating the presence/absence of the 16 elements to the transformed rating. The equation or model is expressed as: Binary Rating = k_0 + k_1 (A1) + k_2(A2)…k_{16}(D4). The OLS regression creates seven separate equations for each variable, one for total, two for the genders, two for the ages, and two for the mind-sets.
- The additive constant k_0, is the expected percent of the time that the respondent will answer with a rating such as 'would recommend', in the absence of elements, and when the dependent variable is the binary expansion for 'would recommend,' viz., ratings of 4 or 5. The additive constant is a purely estimated parameter, but as the analysis below shows, the additive constant provides insight into the predilection of the respondents to assign a specific rating.
- The coefficients, in turn, k_1-k_{16}, show the additional percent of positive responses (e.g., would recommend) when the specific element is inserted into the vignette. The binary transformation from the Likert Scale to the binary scale means that these coefficients have ratio-scale properties, so a 2 is twice as much as a 1. The experimental design ensures that these coefficients have absolute value, allowing them to be compared across groups, archived, and their variation studied over time and across situations.
- The coefficients are additive, and can be combined with the additive constant in order to create a sum, showing the estimated percent of responses of a certain type (e.g., recommend), based upon the predilection to assign that response (additive constant), and the incremental or decremental contributions from the individual elements. It is important to create combinations of no more than four elements, and at most one element from a specific question, paralleling the approach used to create the vignettes.
- The same approach is used to relate the presence/absence of the elements to the response time. The only difference is that the model for response time does not have an additive constant.

Rating of "Recommend"

Our first analysis **(Table 2)** look at the summary results from the equation for the rating of RECOMMEND (ratings 4 and 5). Table 2 shows us that when we look at the Total Panel we see a very strong proclivity to say that one will recommend (additive constant = 64). In the absence of elements, we expect 64% of the responses to be 'I recommend. Some of these judgments come from the selection of 'I understand or I would recommend,' as well as from the less fulsome praise, specifically 'I don't understand, but I would still recommend'. When we look at the Total Panel, we see very few strong performing elements. Previous experience with Mind Genomics studies of this sort suggest that only in the most obvious of cases do we see very high positive coefficients from the total panel. Those who look for very high coefficients from the total panel may have to run the study many times to happen upon the appropriate messaging. The high coefficients will emerge from the mind-sets, as we will see.

There are gender differences, although not dramatic ones. Males are slightly less likely to recommend than are females (additive constant 57 for males versus 66 for females). Males are more focused on the immediate need, in a concrete way,
D4 Need: Employee initial start-up costs-security and engineers.
D1 Need: $40 million dollars for land acquisition.

Females are more responsive to general needs,
B4 Problem: Much more electrical energy will be needed in Texas for the state's future for its people. There are age differences as well. The proclivity to recommend is the same for both younger and older respondents, with similar additive constants (61 and 67 respectively). Younger respondent more focused on specific,
D1 Need: $40 million dollars for land acquisition. Older respondent-respond to messages about the future
B4 Problem: Much more electrical energy will be needed in Texas for the state's future for its people.
B3 Problem: More people each week move to Texas need more energy for them and for the state utilities.

Two Mind Sets Emerge

Mind-Set 1: Global view, look at the positive opportunities for Texas. Mind-Set 1 shows a lower likelihood to recommend, until the right message is delivered. The additive constant is 55, meaning that in the absence of a compelling message, respondents in Mind-Set 1 may or may not recommend. Here are the compelling messages for Mind-Set 1.

B4 Problem: Much more electrical energy will be needed in Texas for the state's future for its people.
B3 Problem: More people each week move to Texas need more energy for them and for the state utilities.
C4 Public Benefit: Fair-paying jobs will be created in Texas.
C2 Public Benefit: Clean sustainable energy.

Mind Set 2 is a lot more likely to recommend (additive constant is 75) but focuses on the specifics of the job. Mind-Set 2 would be more likely to be an effective manager.
D4 Need: Employee initial start-up costs-security and engineers.

Driving to understand

Our second analysis looks at the ratings which signal that they understand the vignettes, and thus the messages contained within the vignettes. The rating of 3 or 5 was converted to 100, and the other ratings were converted to 0. We are not interested in whether the understanding is connected to recommend, or not recommend, but rather simply we look at understanding. As noted above, the OLS (ordinary least squares) regression was done on the data from the 'relevant respondents.' One pass through all the relevant data generated the coefficients, including the additive constant and the 16 coefficients.

Table 3 suggests that in the case of understanding most of the responses will be Yes, I understand (rating 3 or 5), whether the vignette is recommended or not recommended. The overwhelming response of 'Yes, I understand" can be seen from the high additive constant. Combining all respondents generates an equation whose additive constant is 79; meaning four out of five responses will be 3 or 5. The key groups showing differences in basic understanding are age, with the

younger respondents (under 30) saying that they understand only 66% of the time (additive constant 66), whereas the older respondents (30 or older) saying that they understand 87% of time. With high additive constants, we do not expect to see many elements showing coefficients of 8 or higher, on a rounded basis, a level that is considered to be both statistically significant at the 95% level of confidence, as well as a level covering with relevant exogenous behavior, when such exogenous behavior is actually measured.

Table 3 confirms that expectation, showing no strong performing elements increasing understanding beyond the basic high level.

Driving to 'would not recommend'

The focus of most research is positive, either recommend or understand. Mind Genomics allows the researcher to explore the rating of 'not understand' and 'not recommend.' For most research where patterns of response are interesting, considering the negative part of the rating scale is not particularly instructive, simply because the negative part of the scale is the 'absence' of the desired behavior. Mind Genomics makes that negative portion of the scale interesting, simply because the test stimuli, the messages, are cognitively meaningful.

	Recommend-Yes	Total	Male	Female	Young (<30)	Old (30+)	MS 1 Vision	MS 2 Details
	Additive constant-estimated 'recommend' in absent of elements	64	57	66	61	67	55	75
C4	Public Benefit: Fair-paying jobs will be created in Texas	2	1	3	-1	2	**12**	-9
B4	Problem: Much more electrical energy will be needed in Texas for the state's future for its people	6	-6	**12**	2	**9**	**10**	2
B3	Problem: More people each week move to Texas…need more energy for them and for the state utilities	3	6	1	-5	**9**	**10**	-6
C2	Public Benefit: Clean sustainable energy	-6	3	-10	-7	-6	**10**	-22
D4	Need: Employee initial start-up costs - security and engineers	3	**14**	-3	5	0	-7	**11**
D1	Need: $40 million dollars for land acquisition.	5	**9**	3	**10**	0	3	7
A4	Situation: Clean energy sources are needed now more than ever	-2	-3	-1	5	-7	-11	7
B2	Problem: Texas has declared a power grid emergency several times already this year.	3	-2	5	5	2	-1	6
D3	Need: Solar panels and electrical infrastructure costs.	0	0	-1	3	-4	-8	4
A1	Situation: The opportunity exists to purchase a 70 thousand-acre Texas Ranch.	-3	3	-6	-1	-5	-10	3
A2	Situation: Texas needs more electrical power right now	-3	3	-6	-2	-4	-11	3
D2	Need: $2.2 million dollars for each Windmill and installation …200 windmills total $440 million dollars.	-4	-2	-4	-7	-2	-9	1
A3	Situation: Texas need for power relentlessly increasing daily.	-5	-1	-6	-1	-8	-12	1
B1	Problem: Texas has a negative draw on its power grid … more power needed.	1	-1	2	-3	4	4	-2
C1	Public Benefit: The people of Texas will benefit from more power.	-3	6	-6	-5	-2	5	-9
C3	Public Benefit: More electrical energy to help Texas grow and people prosper.	-3	-1	-3	-5	-3	6	-13

Table 2: Relation between elements and rating of 'Likely to recommend' (rating 4 and 5 on the 5-point rating scale).

"Absence of positive response' is linked with a specific, meaningful element, i.e., a 'cognitively rich' element. Our third analysis deals with three scale points about 'not recommending' (1,2,3). As noted above, we transformed ratings of 1,2, or 3 to 100, and ratings of 4 and 5 (recommend) to their complementary value 0.

(Table 4) shows the parameters of the models. Additive constants are low to moderate, suggesting that without any elements, about a third to almost half of the ratings would be 'do not recommend.' These additive constants are the complement to the values for the additive constant for 'recommend', the bigger story emerges from the elements.

Total panel-No elements drives 'not recommend', Males and females are not against any element Exception: Females for C2 above (Public Benefit" Clean sustainable energy).

Age does not drive elements into not recommend: **Exception:** Older respondents for A3 (Situation, Texas need for power relentlessly increasing daily). Mind-Set makes a difference.

Mind-Set 1 (Vision) does not want to recommend messages these specific details: A3 Situation: Texas need for power relentlessly increasing daily.
D2 Need: $2.2 million dollars for each Windmill and installation …200 windmills total $440 million dollars.

A1 Situation: The opportunity exists to purchase a 70 thousand-acre Texas Ranch.
A2 Situation: Texas needs more electrical power right now
A4 Situation: Clean energy sources are needed now more than ever
D3 Need: Solar panels and electrical infrastructure costs.

Mind-Set 2 (Details) does not want to recommended messages with these general but not 'proven' or 'explicated' benefits
C2 Public Benefit: Clean sustainable energy.
C1 Public Benefit: The people of Texas will benefit from more power.
C3 Public Benefit: More electrical energy to help Texas grow and people prosper.
C4 Public Benefit: Fair-paying jobs will be created in Texas.

	Understand	Total	Male	Female	Young (< 30)	Old (30+)	MS1 = Vision	MS 2= Details
	Additive constant-estimated 'understand' in absence of elements	79	75	80	66	87	83	75
D1	Need: $40 million dollars for land acquisition.	-1	-2	1	-1	2	1	-3
B4	Problem: Much more electrical energy will be needed in Texas for the state's future for its people	1	7	-1	6	-4	-5	7
B2	Problem: Texas has declared a power grid emergency several times already this year.	-5	-4	-5	4	-12	-8	-1
B3	Problem: More people each week move to Texas … need more energy for them and for the state utilities	-6	3	-10	3	-13	-13	1
C1	Public Benefit: The people of Texas will benefit from more power.	-6	2	-10	2	-11	-8	-4
B1	Problem: Texas has a negative draw on its power grid … more power needed.	-6	-1	-7	1	-10	-15	3
D3	Need: Solar panels and electrical infrastructure costs.	3	1	4	-1	6	-1	6
A2	Situation: Texas needs more electrical power right now	-7	1	-9	-2	-9	-8	-5
C3	Public Benefit: More electrical energy to help Texas grow and people prosper	-4	2	-7	-3	-4	-9	0
D2	Need: $2.2 million dollars for each Windmill and installation …200 windmills total $440 million dollars.	-2	-19	6	-4	-1	-6	1
C4	Public Benefit: Fair-paying jobs will be created in Texas	-7	-1	-10	-4	-9	-14	-2
D4	Need: Employee initial start-up costs-security and engineers	-6	-16	-1	-6	-6	-11	-2
C2	Public Benefit: Clean sustainable energy.	-8	-2	-10	-8	-6	-14	-2
A4	Situation: Clean energy sources are needed now more than ever	-7	0	-10	-11	-3	-6	-8
A1	Situation: The opportunity exists to purchase a 70 thousand-acre Texas Ranch.	-12	-12	-11	-11	-10	-8	-15
A3	Situation: Texas need for power relentlessly increasing daily.	-9	-11	-9	-16	-3	-6	-12

Table 3: Models relating the presence/absence of the elements to 'understanding' (rating 3 and 5 on the 5-point rating scale).

Driving to 'Do Not Understand'

We can look at the scale from the reverse direction, 'do not understand' **(Table 5)**.

Total Panel: The strongest elements driving 'Do Not Understand' are those talking about the situation in Texas
A1 Situation: The opportunity exists to purchase a 70 thousand-acre Texas Ranch.
A3 Situation: Texas need for power relentlessly increasing daily.
C2 Public Benefit: Clean sustainable energy
The genders differ.

Women seem to say 'I DON'T UNDERSTAND' for quite a number of elements
A1 Situation: The opportunity exists to purchase a 70 thousand-acre Texas Ranch
A3 Situation: Texas need for power relentlessly increasing daily.
C2 Public Benefit: Clean sustainable energy
A2 Situation: Texas needs more electrical power right now
A4 Situation: Clean energy sources are needed now more than ever
C4 Public Benefit: Fair-paying jobs will be created in Texas
Men
A1 Situation: The opportunity exists to purchase a 70 thousand-acre Texas Ranch.
A3 Situation: Texas need for power relentlessly increasing daily.
The ages differ as well, both in the additive constant, and in a number of specific elements.

The younger respondents are more likely to be negative than the older respondents additive constant 13 for older, vs. 34 for younger). The younger respondents simply do not understand.

The younger respondents do not understand a sense of immediacy
A3 Situation: Texas need for power relentlessly increasing daily.
In contrast, the older respondents do not understand
B1 Problem: Texas has a negative draw on its power grid…more power needed.
B3 Problem: More people each week move to Texas…need more energy for them and for the state utilities
C1 Public Benefit: The people of Texas will benefit from more power
B2 Problem: Texas has declared a power grid emergency several times already this year. The two mind-sets differ dramatically,

Mind Set 1 (vision) does not understand the specifics involve in the planning
B1 Problem: Texas has a negative draw on its power grid…more power needed.
B3 Problem: More people each week move to Texas…need more energy for them and for the state utilities
D4 Need: Employee initial start-up costs-security and engineers
Mind Set 2 (details) does not understand the 'big picture'
A1 Situation: The opportunity exists to purchase a 70 thousand-acre Texas Ranch.
A3 Situation: Texas need for power relentlessly increasing daily.

	Would Not Recommend	Total	Male	Female	Young (<30)	Old (30+)	MS 1 - Vision	MS 2 - Details
	Additive constant – estimated 'would not recommend' in absence of elements	36	43	34	39	33	45	26
A3	Situation: Texas need for power relentlessly increasing daily.	5	1	6	1	**8**	**12**	-1
A2	Situation: Texas needs more electrical power right now	3	-3	6	2	4	**11**	-3
A4	Situation: Clean energy sources are needed now more than ever	2	3	1	-5	7	**11**	-7
A1	Situation: The opportunity exists to purchase a 70 thousand-acre Texas Ranch.	3	-3	6	1	5	**10**	-3
D2	Need: $2.2 million dollars for each Windmill and installation …200 windmills total $440 million dollars.	4	2	4	7	2	**9**	-1
D3	Need: Solar panels and electrical infrastructure costs.	0	0	1	-3	4	**8**	-4
C2	Public Benefit: Clean sustainable energy	6	-3	**10**	7	6	-10	**22**
C3	Public Benefit: More electrical energy to help Texas grow and people prosper	3	1	3	5	3	-6	**13**
C1	Public Benefit: The people of Texas will benefit from more power.	3	-6	6	5	2	-5	**9**
C4	Public Benefit: Fair-paying jobs will be created in Texas	-2	-1	-3	1	-2	-12	**9**
B3	Problem: More people each week move to Texas … need more energy for them and for the state utilities	-3	-6	-1	5	-9	-10	6
B1	Problem: Texas has a negative draw on its power grid … more power needed.	-1	1	-2	3	-4	-4	2
B4	Problem: Much more electrical energy will be needed in Texas for the state's future .. for its people	-6	6	-12	-2	-9	-10	-2
B2	Problem: Texas has declared a power grid emergency several times already this year.	-3	2	-5	-5	-2	1	-6
D1	Need: $40 million dollars for land acquisition.	-5	-9	-3	-10	0	-3	-7
D4	Need: Employee initial start-up costs - security and engineers	-3	-14	3	-5	0	7	-11

Table 4: Models relating the presence/absence of the elements to 'not recommend' (ratings 1, 2, and 3 on the 5-point rating scale).

Consideration Time

Up to now we have dealt with messages and their ability to convince. An emerging measure, actually a measure reconsidered after some years of disuse, is consideration time, or 'reaction time' in the parlance of experimental psychology. The notion is that additional insights into the way people think about messages can be gained by measuring the time during which they are engaged in reading and processing information. The history of reaction time in experimental psychology, especially for processing information, can be readily obtained from classics, such as E.G. Boring's History of Experimental Psychology [12]. More modern efforts are found in the literature especially early efforts in the world of cognitive psychology [13]. The market research community is trying to commercial these approaches, primarily as measurement tools, to detect truth-telling vs. lying [14,15]. The traditional methods for measuring reaction time involve presenting the stimulus to the respondent, instructing the respondent to signal as soon as the respondent either

detects the stimulus or understands the stimulus (detection versus recognition), and then measure the time elapsed. The time is presumed to be occupied by cognitive activities, such as reading and making the decision.

Mind Genomics moves in this direction, to measure consideration time, but does so in a simpler manner, one which provides a great deal more information. Recall that the test stimuli comprise systematically varied combinations. The dependent variable now becomes the time between the presentation of the test stimulus, the vignette, and the response, viz., the rating. The respondent need not be cued into responding, but rather the ratings need to be measured in terms of 'time elapse.' The analysis of such elapsed time or in 'consideration time' is quite straightforward, thanks to the types of analyses made possibly by the experimental design, and 'systematic variation.' Just as we were able to deconstruct the rating (after binary transformation) into the contributions of the different elements, once again we create model, this time relating the Consideration Time (response time) to the 16 different elements.

The equation, generated from all respondents and data appropriate to the key subgroup, is: Consideration Time=k_1(A1) + k_2(A2)…. K_{16}(D4). The additive constant is absent, based upon the fact that in the absence of elements the consideration time must be 0. There is nothing to which one can react. Following this convention, we see the 16 coefficients, one for each element, for each group, in **(Table 6)**. The coefficients are the estimated number of seconds required for the respondent to read the element and assign a rating. It is the experimental design, keeping the 16 elements statistically independent, which allows us to assign some consideration time to each element, that consideration time being shown numerically by the coefficient.

To reiterate, a key objective of Mind Genomics is to understand the nature of the underlying decision processes. The experimental design, coupled with the OLS regression, assigns different coefficients, namely different consideration times to each element. Table 6 shows that for the total panel, the longest consideration times, 1.3 seconds or longer, are occasioned by the presentation of relevant information. When there is this information which 'tell a story' in a general sense, people pay attention. The number of seconds for each element is 1.3 or more for these engaging messages.

	Do Not Understand	Total	Male	Female	Young (< 30)	Old (30+)	MS1 (Vision)	MS 2 (Details)
	Additive constant – estimated 'do not understand' in absence of elements	21	25	21	34	13	17	25
B1	Problem: Texas has a negative draw on its power grid … more power needed.	6	1	7	-1	**10**	**15**	-3
C2	Public Benefit: Clean sustainable energy	**8**	2	**10**	**8**	6	**14**	2
C4	Public Benefit: Fair-paying jobs will be created in Texas	7	1	**10**	4	**9**	**14**	2
B3	Problem: More people each week move to Texas … need more energy for them and for the state utilities	6	-3	**10**	-3	**13**	**13**	-1
D4	Need: Employee initial start-up costs - security and engineers	6	**16**	1	6	6	**11**	2
C3	Public Benefit: More electrical energy to help Texas grow and people prosper	4	-2	7	3	4	**9**	0
A1	Situation: The opportunity exists to purchase a 70 thousand-acre Texas Ranch.	**12**	**12**	**11**	**11**	**10**	**8**	**15**
A2	Situation: Texas needs more electrical power right now	7	-1	**9**	2	**9**	**8**	5
C1	Public Benefit: The people of Texas will benefit from more power.	6	-2	**10**	-2	**11**	**8**	4
B2	Problem: Texas has declared a power grid emergency several times already this year.	5	4	5	-4	**12**	**8**	1
A3	Situation: Texas need for power relentlessly increasing daily.	**9**	**11**	**9**	**16**	3	6	**12**
A4	Situation: Clean energy sources are needed now more than ever	7	0	**10**	**11**	3	6	**8**
D2	Need: $2.2 million dollars for each Windmill and installation …200 windmills total $440 million dollars.	2	**19**	-6	4	1	6	-1
D3	Need: Solar panels and electrical infrastructure costs.	-3	-1	-4	1	-6	1	-6
D1	Need: $40 million dollars for land acquisition.	1	2	-1	1	-2	-1	3
B4	Problem: Much more electrical energy will be needed in Texas for the state's future. for its people	-1	-7	1	-6	4	5	-7

Table 5: Models relating the presence/absence of the elements to 'not understand' (ratings 1, 2, and 4 on the 5-point scale).

B1 Problem: Texas has a negative draw on its power grid … more power needed
A4 Situation: Clean energy sources are needed now more than ever
B3 Problem: More people each week move to Texas need more energy for them and for the state utilities
C2 Public Benefit: Clean sustainable energy
C3 Public Benefit: More electrical energy to help Texas grow and people prosper
When the element is an 'ask' of a certain amount of money, the respondent engages a mere 0.6 seconds, rather than 1.3 seconds or longer

D1 Need: $40 million dollars for land acquisition
Moving to Genders, we see dramatic differences, Men-pay longer attention to concrete information
B1 Problem: Texas has a negative draw on its power grid … more power needed
C2 Public Benefit: Clean sustainable energy
C3 Public Benefit: More electrical energy to help Texas grow and people prosper
A1 Situation: The opportunity exists to purchase a 70 thousand-acre Texas Ranch
A3 Situation: Texas need for power relentlessly increasing daily.

Females-similar responses-a slightly deeper focus on messages about people
B1 Problem: Texas has a negative draw on its power grid…more power needed
A4 Situation: Clean energy sources are needed now more than ever
B3 Problem: More people each week move to Texas…need more energy for them and for the state utilities
C2 Public Benefit: Clean sustainable energy
C3 Public Benefit: More electrical energy to help Texas grow and people prosper
D4 Need: Employee initial start-up costs-security and engineers

Younger (Age<30)-A sense of evening the 'playing field' for jobs
B3 Problem: More people each week move to Texas … need more energy for them and for the state utilities
C3 Public Benefit: More electrical energy to help Texas grow and people prosper
B1 Problem: Texas has a negative draw on its power grid…more power needed
C2 Public Benefit: Clean sustainable energy

Older (Age 30+)-A sense of structural need
A4 Situation: Clean energy sources are needed now more than ever

B1 Problem: Texas has a negative draw on its power grid…more power needed
C2 Public Benefit: Clean sustainable energy
A1 Situation: The opportunity exists to purchase a 70 thousand-acre Texas Ranch
A3 Situation: Texas need for power relentlessly increasing daily
B2 Problem: Texas has declared a power grid emergency several times already this year
D3 Need: Solar panels and electrical infrastructure costs
Mind-Set 1-Pays attention to messages about the general benefit of wind power
C2 Public Benefit: Clean sustainable energy
C1 Public Benefit: The people of Texas will benefit from more power.
D4 Need: Employee initial start-up costs-security and engineers
C3 Public Benefit: More electrical energy to help Texas grow and people prosper.

	Consideration Time	Total	Male	Female	Young (<30)	Old (30+)	MS1 Vision pm	MS2 Details
B1	Problem: Texas has a negative draw on its power grid … more power needed.	**1.5**	**1.7**	**1.3**	**1.4**	**1.4**	0.9	**2.0**
B3	Problem: More people each week move to Texas … need more energy for them and for the state utilities	**1.3**	1.2	**1.4**	**1.8**	0.9	0.8	**1.8**
A4	Situation: Clean energy sources are needed now more than ever	**1.3**	0.9	**1.5**	0.9	**1.6**	1.1	**1.5**
C2	Public Benefit: Clean sustainable energy	**1.3**	**1.4**	**1.3**	**1.3**	**1.4**	**1.4**	1.2
C3	Public Benefit: More electrical energy to help Texas grow and people prosper	**1.3**	**1.3**	**1.3**	**1.8**	0.8	**1.3**	1.1
A3	Situation: Texas need for power relentlessly increasing daily.	1.2	**1.4**	1.0	0.8	**1.4**	1.0	**1.4**
A1	Situation: The opportunity exists to purchase a 70 thousand-acre Texas Ranch.	1.2	**1.4**	1.0	0.9	**1.4**	1.1	**1.3**
B4	Problem: Much more electrical energy will be needed in Texas for the state's future for its people	1.1	1.0	1.2	1.2	1.0	0.7	**1.6**
B2	Problem: Texas has declared a power grid emergency several times already this year.	1.1	1.1	1.1	0.5	**1.4**	0.7	**1.4**
C4	Public Benefit: Fair-paying jobs will be created in Texas	1.1	0.8	1.2	1.1	1.1	1.0	1.1
D4	Need: Employee initial start-up costs - security and engineers	1.1	0.7	**1.3**	1.0	1.1	**1.3**	0.8
D3	Need: Solar panels and electrical infrastructure costs.	1.0	0.5	1.2	0.7	**1.3**	1.1	0.9
C1	Public Benefit: The people of Texas will benefit from more power.	1.0	1.0	1.1	1.2	0.9	**1.4**	0.6
A2	Situation: Texas needs more electrical power right now	0.9	0.9	0.8	0.9	0.8	0.6	1.1
D2	Need: $2.2 million dollars for each Windmill and installation …200 windmills total $440 million dollars.	0.9	0.2	1.2	0.8	1.0	0.7	1.0
D1	Need: $40 million dollars for land acquisition.	0.6	0.2	0.7	0.4	0.7	0.5	0.6

Table 6: Consideration Time for all elements for total panel each key subgroup.

Mind-set 2-Pays attention to facts
B1 Problem: Texas has a negative draw on its power grid more power needed
B3 Problem: More people each week move to Texas need more energy for them and for the state utilities
B4 Problem: Much more electrical energy will be needed in Texas for the state's future for its people
A4 Situation: Clean energy sources are needed now more than ever
A3 Situation: Texas need for power relentlessly increasing daily.
B2 Problem: Texas has declared a power grid emergency several times already this year
A1 Situation: The opportunity exists to purchase a 70 thousand-acre Texas Ranch

Uncovering pairwise interactions among messages-demonstration of scenario analysis using 'Situation'

Mind Genomics allows the researcher to test many combinations of messages, not just a few combinations repeated dozens or hundreds of times to reduce the error of estimate, a strategy used by most other researchers. By testing many combinations through the systematic permutation of the underlying experimental design a valuable byproduct emerges [16]. That byproduct is the fact that most of the vignettes, the combinations of messages according to design, in fact, differ from each other. It is that degree of difference which allows the researcher to discover the interactions.

The interactions are discovered by a surprisingly process, of four steps:

Step 1: Create a new variable, "By", such as ByA. The ByA variable takes on the value 1 when A=1, value 2 when A=2, the value 3 when A=3, and finally the value 4 when A=4. When the vignette has no A, the variable ByA takes on the value 0.

Step 2: Sort the database according to the value of ByA. The sort produces five distinct strata, corresponding to the five levels of ByA.

Step 3: Run a separate OLS regression relating the presence/absence of the 12 remaining elements (B1-D4) to the binary rating. The additive constant shows the expected value of the vignette with the fixed value of (A1-A4), but without any other element. The coefficients for a specific element (e.g., B1) can compare across five levels of A, 'situation' to show how 'situation' affects the specific element.

Step 4: Look for interactions. Compare the coefficient an element in the absence of Situation (ByA=0) to the coefficient of the same element in the presence of a specific situation (e.g., ByA=1 or ByA=2, 3, or 4, respectively). A large positive increase in the coefficient in the presence of a specific situation vs. the value of the same coefficient in the absence of a situation (ByA=0) is evidence of a synergism. **(Table 7)**

presents the summary data for the scenario analysis using question a, situation, as the stratifying variable.

Typing the mind

A continuing theme in Mind Genomics is the emergence of mind-sets. One can think about mind-sets as 'primaries', such as the red, the blue and the green, of a topic. Mind-Sets are different ways of thinking about a topic. Mind-Sets emerge from the statistical analysis of the pattern of coefficients. The coefficients may be thought of as the weights one puts on different pieces of information. People with similar patterns of coefficients may be considered to think about the topic in the same way, at least for the specifics of the topic studied in the experiment. People with different patterns of coefficients may be considered to think about the topic in different ways. Finally, the clustering exercise reduces the inter-personal differences, revealed by the coefficients, into a limited set of 'basic' patterns. **(Table 8)** shows a two-way table. The columns show the total panel and the two complementary mind-sets emerging from this Mind Genomics cartography. The rows show the classification by gender, by age, and by declared concern with the environment and energy. The two mind-sets distribute in roughly equal proportions on each classification variable.

Recommend - YES		None	Situation: The opportunity exists to purchase a 70 thousand-acre Texas Ranch.	Situation: Texas needs more electrical power right now	Situation: Texas need for power relentlessly increasing daily.	Situation: Clean energy sources are needed now more than ever
		ByA=0	ByA=1	ByA=2	ByA=3	ByA=4
	Additive constant	44	53	61	74	63
B2	Problem: Texas has declared a power grid emergency several times already this year.	**31**	-3	1	-2	-1
B4	Problem: Much more electrical energy will be needed in Texas for the state's future. for its people	**27**	-2	7	-6	**21**
B1	Problem: Texas has a negative draw on its power grid … more power needed.	**26**	1	-2	-21	**9**
D4	Need: Employee initial start-up costs-security and engineers	**15**	**14**	2	-8	-4
D1	Need: $40 million dollars for land acquisition.	**14**	4	7	1	3
D3	Need: Solar panels and electrical infrastructure costs.	**11**	**16**	0	-3	-15
B3	Problem: More people each week move to Texas … need more energy for them and for the state utilities	2	-4	**11**	3	**11**
D2	Need: $2.2 million dollars for each Windmill and installation …200 windmills total $440 million dollars.	1	**9**	-7	-5	-8
C1	Public Benefit: The people of Texas will benefit from more power.	-5	-3	1	-6	-7
C3	Public Benefit: More electrical energy to help Texas grow and people prosper	-6	3	-8	-7	-1
C2	Public Benefit: Clean sustainable energy	-6	-1	-6	-10	-16
C4	Public Benefit: Fair-paying jobs will be created in Texas	-23	**10**	-2	-2	**12**

Table 7: Summary of scenario analysis, showing how elements from Question A (Situation) interact with the remaining elements to drive the rating of recommendation.

Traditional methods to 'weight' the different classification variables simply will not work in this situation, where we deal with a micro-topic, quite specific, but in fact quite relevant and actionable. Other Mind Genomics studies confirm the fact that at the level where 'action ability' is important, the typical segmentation simply fails, unless the segmentation is obvious. We deal here with a typical situation, where we want to work with how people THINK, but only can measure who people ARE. With this short introduction to the variation of people, the question now becomes how to 'find' these individuals. Virtually every Mind Genomics study suggests that it will be virtually impossible to identify individuals knowing only WHO they are, such as age and gender. Most Mind Genomics studies further suggest that it is quite unlikely to discover an easy to use set of general questions which can predict the specific mind-set to which a person will belong. (vision) or Mind-Set 2 (details). The approach uses a Monte Carlo simulation, adding random error to the data from the coefficients for each mind-set, and assigning a respondent to the mind-set, based upon "distance" from An approach, the PVI (personal viewpoint identifier) has been suggested to solve the problem of assigning new people to one of the specific mind-sets developed in a specific study (e.g., assign a person to Mind-Set1 the average profile for the mind-set. The approach, developed by author Gere, has been implemented in an automated approach. The output of the PVI is simple set of six questions, and a 2-point scale. **(Figure 1)** shows a screen shot of the PVI created for this

study. The PVI algorithm identifies the six questions, which are six of the 16 elements in the study, ensuring that the PVI assigns a new person to the mind-sets uncovered by this study. The respondent answers, shown on the right side, are selected by the researcher, and can be changed, when the response terms are fundamentally NO or YES, respectively.

		Total	MS1 Vision	MS2 Details
	Total	51	25	26
Gender	Male	17	10	7
Gender	Female	34	15	19
Age	Age<30	20	8	12
Age	Age 30+	31	17	14
Focus	Not really concerned	9	7	2
Focus	I'm very focused on energy needs	12	5	7
Focus	I'm very focused on the effects of climate change	6	2	4
Focus	I'm focused on energy needs and climate change	24	11	13
Focus	Focus Net Energy	36	16	20
Focus	Focus Net Climate	30	13	17

Table 8: Distribution of respondents by gender by age and by self-declared focus on energy and environment.

The PVI requests both information about the respondent as well as presenting the six questions, as of this writing (winter, 2020) the PVI can be found at this site: https://www.pvi360.com/TypingToolPage.aspx?projectid=122anduserid=2018

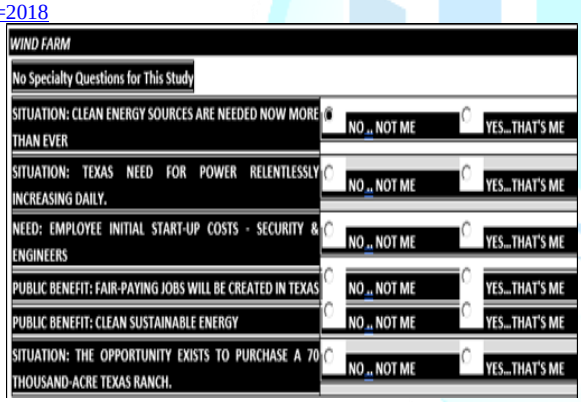

Figure 1: The PVI (personal viewpoint identifier) created for this study.

Study 2-Beyond attitude to economics

In the second experiment a new set of 51 new respondents participated, (15 males, 35 females; 32 age 23-39, 18 age 40-71). The Mind Genomics test experience was parallel, except for the rating scale. The respondent was presented with the systematically varied vignettes, but this time were instructed to assign a rating to reflect how much they felt a share of the stock would be, if the vignette reflected the stock. The respondents were given a 9-point scale, with the anchor point 1 corresponding to $0, and the anchor point 9 corresponding to $100. The respondent assigned a single rating, which was converted to dollar value, following a linear transform: 1=$0, 2=$12.50, 3=$25, 4=$37.50, 5=$50, 6=$62.50, 7=$75, 8=$87.50, 9=$100.

OLS (ordinary least-squares) regression, done at the level of the respondent, estimated the 16 coefficients of the model relating the presence/absence of the elements versus the dollar value. Once again, the experimental design allowed for the individual-level modeling. The additive model did not have a constant based on the rationale that in the absence of message, no one would know what the stock is about. The clustering to find groups was once again conducted on the coefficients, this time based first on the coefficients from the dollar value, and then second based on the coefficients from Consideration Time. The age groups were slightly different in Study 2 because the focus in Study 2 was on older respondents.

Results-Models based on dollar value as the dependent variable (Study 2): Table 9 shows the coefficients for the models looking at the linkage between dollar value and presence/absent of the elements. Each element has seven columns of numbers one column for each group as defined either by the self-profiling questionnaire (age, gender) or by the clustering using the dollar values of each of the 16 messages. (Table 9) suggests that for economics-based response scales, such as dollar value, there is relatively little difference in the pattern of coefficients among the different self-defined subgroups. Across groups there are a few elements which drive the price higher (higher coefficients), and elements which play no role (coefficients near 0) People think alike.

There may be differences of $5 to $7 for the same element across groups, but little else. One of the continuing findings of Mind Genomics is that 'homo economicus', economic man, is much more homogeneous than 'homo emotionalis,' feeling man, people divided by how they feel about a topic. Instruct people to act like objective measuring instruments, and they respond differently, with a more constrained, more 'accurate' or at least more 'considered' rating. Big group differences emerge with mind-sets based upon patterns price for the different elements. We are not talking about one group willing to pay more than another group, but rather about patterns. Mind-Set 3 focuses on the specifics. Mind-Set 4 focuses on the benefits to the state and its people, on what the power will accomplish.

Results-Segmentation based on Consideration Time (Study 2): We finish the data analysis with segmentation based upon consideration time. We often think of consideration time in terms of simple processing and assume somehow that there is a link between what is processed by reading, and what becomes the focus of attention. Can we uncover different 'mind-sets,' based not on the content of the messages, the usual approach, but rather based upon the pattern of Consideration Times? We did the same analysis, this time for consideration times, focusing on Study 2.

(Table 10) shows the set of response times for who the respondent IS (total, gender, age), but also how long it takes the respondent to process the information. Mind-Sets 5 and 6 shows the emergence once again of two mind-sets, one focusing on process (needs and what to do), the other focusing on benefits to the population.

Discussion The wind power lesson: From the hypothetico-deductive to the cartographic and inductive The literature in public relations about measuring attitudes is almost beyond measure. Public opinion is a temptation for one to sway the any aspect of life where people are free to spend their money and time. The world of today is awash with causes, with organizations set up to ameliorate the problems, and with the funds and willpower to sway public opinion towards their own ends. Traditional polling asks simple questions, obtains simple answers, and presents these as stand-alone facts. Pollsters focus on the representativeness of their samples, on the execution of the poll, with the assumption that the poll questions are correct.

To pollsters, and indeed too many political analysts, it is the correct sample, the correct execution, the non-biased question, respectively, which is of interest. The Mind Genomics approach to the sustainability issue of wind power goes far deeper into the issue than typical polls. As the approach presented here shows, the issue of wind power is not simply a question of whether one approves of the technology to help the state of Texas. Rather, it is the different aspects of the story of Texas' need, the solution provided by wind power, what must be done which must be disentangled, and evaluated against each other in novel combinations.

		Total	Male	Female	Age 23-39	Age 40-71	MS3 Dollar Process	MS4 Dollar Benefit
Mind-Set-Proces-Focus on need and problem								
D4	Need: Employee initial start-up costs - security and engineers	**$20**	**$22**	$19	**$20**	$19	**$35**	$14
D1	Need: $40 million dollars for land acquisition.	$17	$15	$18	$19	$14	**$30**	$10
D3	Need: Solar panels and electrical infrastructure costs.	$15	$17	$14	$16	$13	**$26**	$8
B4	Problem: Much more electrical energy will be needed in Texas for the state's future for its people	$16	$16	$16	$15	$18	**$25**	$11
D2	Need: $2.2 million dollars for each Windmill and installation …200 windmills total $440 million dollars.	$16	$13	$17	$17	$14	**$25**	$8
B2	Problem: Texas has declared a power grid emergency several times already this year.	$14	$15	$14	$13	$16	**$21**	$11
Mind-Set 4 –Benefits - Focus on benefits to the state and to the people								
C1	Public Benefit: The people of Texas will benefit from more power.	$17	**$21**	$16	$18	$16	$1	**$29**
C2	Public Benefit: Clean sustainable energy	$18	$19	$18	$18	$18	$9	**$27**
C4	Public Benefit: Fair-paying jobs will be created in Texas	$18	$18	$19	**$20**	$15	$9	**$25**
C3	Public Benefit: More electrical energy to help Texas grow and people prosper	$18	$19	$17	$18	$17	$6	**$24**
A4	Situation: Clean energy sources are needed now more than ever	$16	$17	$16	$17	$15	$13	$18
B1	Problem: Texas has a negative draw on its power grid … more power needed.	$17	$16	$18	$18	$16	$19	$16
B3	Problem: More people each week move to Texas … need more energy for them and for the state utilities	$16	$16	$16	$16	$16	$17	$15
A3	Situation: Texas need for power relentlessly increasing daily.	$16	$18	$15	$16	$16	$19	$14
A1	Situation: The opportunity exists to purchase a 70-thousand acre Texas Ranch.	$15	$18	$14	$14	$16	$11	$14
A2	Situation: Texas needs more electrical power right now	$12	$10	$13	$12	$11	$9	$13

Table 9: Relation between element, and coefficient representing dollar value. The data shows the coefficients for the total panel, for gender, for age, and for two mind-sets (MS3 Process, MS4 Benefits), emerging from the analysis of coefficients for dollar value.

Doing so ensures that a compound or complex story, such as wind power to help a state, does not produced biased results because one part of the story moves in one direction (e.g., positive) does not suppress or hide another part of the story moving in the opposite direction (e.g., negative). The strategy of mixing and matching parts of the story, along with alternatives, gives a sense of the dynamics of the issue. What continues to surprise in the Mind Genomics effort is the emergence of new mind-sets, different patterns of responses to the same element, along with the radically different response patterns. Most pollsters and researchers will readily admit that the human condition leads to different ways of thinking about a problem. At the same time, however, it seems to have been virtually impossible to understand these different ways of thinking about a problem, except in the most obvious of cases. Mind Genomics opens up these differences.

Coda-The Science of the Every Day

A great deal of today's science follows a prescribed path of placing one's research into the matrix of previous studies, then developing a hypothesis, and either confirming or disconfirming that hypothesis. In this type of spirit of inquiry, the natural exuberance of the scientist is suppressed, in order to follow the specified 'steps' of an intellectual dance. New topics cannot emerge unless they can be tied to old studies.

New research must address the gaps in the literature. New ideas must be rigorously proved. The above-mentioned set of strictures on research, whether formally or informally imposed, would have kept the wind-power study from being done in the first place. The literature provides no call for unanswered questions. There are only situations to be understood. There are no experiments to do, other than with people.

And finally, there are no grand discoveries about the mind of people, no generalities. There is simple the science of the everyday, as unromantic as that sounds. The data from this study, or perhaps better described the data from this cartography of the mind for a situation, provides a sense of people in general. Thousands of these studies, on all aspects of interest in the intersection of the environment and energy, will likely and eventually create the knowledge base needed for the next generations of society.

		Total	Male	Female	Young (23-39)	Old (40+)	MS 5-Process	MS 6-Benefit
Mind-Set 5-Focus on need and problem (specifics)								
D4	Need: Employee initial start-up costs - security and engineers	**1.7**	**1.6**	**1.7**	**1.7**	**1.8**	**2.3**	1.3
D2	Need: $2.2 million dollars for each Windmill and installation …200 windmills total $440 million dollars.	1.1	**1.5**	1.0	1.2	0.9	**2.0**	0.5
D1	Need: $40 million dollars for land acquisition.	0.9	0.8	1.0	0.9	0.9	**1.6**	0.8
B3	Problem: More people each week move to Texas … need more energy for them and for the state utilities	0.9	0.9	0.9	0.8	1.1	**1.5**	-0.1
Mind-Set 6 – Focus on Benefits								
C3	Public Benefit: More electrical energy to help Texas grow and people prosper	1.0	0.5	1.2	0.6	**1.7**	-0.2	**2.3**
C2	Public Benefit: Clean sustainable energy	0.9	0.4	1.1	0.6	1.3	-0.5	**2.3**
C4	Public Benefit: Fair-paying jobs will be created in Texas	0.8	0.2	1.0	0.7	0.9	-0.1	**1.9**
A2	Situation: Texas needs more electrical power right now	1.3	0.9	**1.5**	1.2	**1.5**	1.1	**1.8**
C1	Public Benefit: The people of Texas will benefit from more power.	0.8	0.1	1.0	0.6	1.1	-0.5	**1.7**
A3	Situation: Texas need for power relentlessly increasing daily.	0.8	1.0	0.7	0.6	1.1	0.8	1.0
D3	Need: Solar panels and electrical infrastructure costs.	1.0	1.1	1.0	1.2	0.8	1.4	0.8
A1	Situation: The opportunity exists to purchase a 70-thousand acre Texas Ranch.	0.8	0.8	0.7	0.7	1.0	0.8	0.8
A4	Situation: Clean energy sources are needed now more than ever	0.8	0.7	0.9	0.6	1.1	1.0	0.7
B1	Problem: Texas has a negative draw on its power grid … more power needed.	1.0	0.6	1.2	0.6	**1.7**	1.3	0.6
B2	Problem: Texas has declared a power grid emergency several times already this year.	1.1	1.0	1.2	1.0	1.3	1.2	0.6

Table 10: Relation between element, and coefficient showing Consideration Time in seconds. The data shows the coefficients for the total panel, for gender, for age, and for two emergent mind-sets coming from the analysis of coefficients for consideration time (aka response time).

Acknowledgment

Attila Gere would like to acknowledge the support of the Premium Postdoctoral Researcher Program of the Hungarian Academy of Sciences.

References

1. Martens P. Sustainability: science or fiction? (2006) Sustainability: Science, Practice and Policy 2: 36-41.
2. Szarka J. Wind Power in Europe: Politics, Business and Society (2007) Palgrave Macmillan, United Kingdom.
3. Onat N and Bayar H. The sustainability indicators of power production systems (2010) Renewable and Sustainable Energy Reviews 14: 3108-3115 https://doi.org/10.1016/j.rser.2010.07.022
4. Bell D, Gray T, Haggett C and Swaffield J. Re-visiting the 'social gap': public opinion and relations of power in the local politics of wind energy (2013) Environmental Politics 22: 115-135. https://doi.org/10.1080/09644016.2013.755793
5. Guo Y, Ru P, Su J and Anadon LD. Not in my backyard, but not far away from me: Local acceptance of wind power in China (2015) Energy 82: 722-733.
6. https://doi.org/10.1016/j.energy.2015.01.082
7. Chabowski BR, Mena JA and Gonzalez PTL. The structure of sustainability research in marketing, 1958-2008: a basis for future research opportunities (2011) Journal Academy Marketing Science 39: 55-70. https://doi.org/10.1007/s11747-010-0212-7
8. Moskowitz HR. Mind Genomics': The experimental inductive science of the ordinary, and its application to aspects of food and feeding (2012) Physiology and Behavior 107: 606-613. https://doi.org/10.1016/j.physbeh.2012.04.009
9. Moskowitz HR, Gofman A, Beckley J and Ashman H. Founding a new science: Mind Genomics (2006) Journal Sensory Studies 21: 266-307. https://doi.org/10.1111/j.1745-459x.2004.00066.x
10. Moskowitz HR, Gofman A, Itty B, Katz R, Manchaiah M, et al. Rapid, inexpensive, actionable concept generation and optimization: the use and promise of self-authoring conjoint analysis for the food service industry (2001) Food Service Technology 1: 149-167. https://doi.org/10.1046/j.1471-5740.2001.00021.x

11. Dubes R and Jain AK. Clustering methodologies in exploratory data analysis (1980) Advances in Computers 19: 113-238. https://doi.org/10.1016/s0065-2458(08)60034-0
12. Reichig L, Gere A, Papajorji P, Shelley R, Starke S, et al. Prospects for students as students see them: A Mind Genomics Exploration (2019) Ageing Science and Mental Health Studies 3: 1-12.
13. Boring EG. History of experimental psychology (2008) Genesis Publishing Pvt Ltd, India.
14. Kristjánsson A and Egeth H. How feature integration theory integrated cognitive psychology, neurophysiology and psychophysics (2019) Attention, Perception and Psychophysics 82: 1-17. https://doi.org/10.3758/s13414-019-01803-7
15. Suchotzki, Kristina, Verschuere, Bruno, Bockstaele V, et al. Lying takes time: A meta-analysis on reaction time measures of deception (2017) Psychological Bulletin 143: 428-453. https://doi.org/10.1037/bul0000087
16. Thomas AR, Pop NA, Iorga AM and Ducu C. Ethics and Neuromarketng: Implications for Market Research and Business Practice (2016) Springer. https://doi.org/10.1007/978-3-319-45609-6
17. Moskowitz HR, Gofman A, Itty B, Katz R, Manchaiah M, et al. Rapid, inexpensive, actionable concept generation and optimization: the use and promise of self-authoring conjoint analysis for the food service industry (2001) Food Service Technology 1: 149-167. https://doi.org/10.1046/j.1471-5740.2001.00021.x