
Covid-19 Vaccine Decision Making: Influential-Network Insights

Bill Bloom and Glenna Crooks, PhD



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Executive Summary

Covid-19 vaccination rates vary by age, risk factors, and geography across the US and are sub-optimal for many reasons. Both the public and private sectors have mounted campaigns to improve vaccine acceptance, and more promotional efforts will be required to succeed.

This study explored a person's entire personal social ecosystem to understand better how it might influence Covid-19 vaccine decision-making to determine if new types of messengers could be identified and engaged in promoting vaccination. It did this by asking respondents which of their personal networks were most likely to influence their decision to immunize themselves and, if they were a parent, to vaccinate their children to protect against Covid-19. It is the first study of this type to be conducted on any aspect of health.

It used a personal network information architecture¹ that describes eight networks that support adults in their roles as spouses, parents, friends, employees, and community members. In this study, respondents were asked which of those networks they would turn to for advice to help them make a Covid-19 vaccination decision.

This paper reports on the results from *all respondents*, regardless of whether or not they are parents.² Overall, respondents named the *Health Network* the top choice among the eight that would influence their decision, a preference driven by responses from White Men, followed by the *Family Network*, which was the top choice of all other ethnic and gender subgroups in the study. These two networks received the highest *Passion Scores*[®] and *Idea Scores*, both above the mean or benchmark for *FastFocus* studies, while also receiving low *Controversiality Scores*. This was true regardless of gender, race, education, income, or politics.

Meanwhile, seeking guidance from *Personal Advisors* (like attorneys or accountants) in the *Home and Personal Affairs Network* or from those in a *Career Network* ranked lowest overall. Those networks had low *Passion Scores*[®], low *Idea Scores*, and high *Controversiality Scores*. The

¹ The personal network information architecture was developed by Dr. Glenna Crooks in more than a decade of ethnographic research. She also served as a "proxy" for a client based on her experiences as a former senior public health official in the US government and senior executive in a vaccine company.

² In certain cases, we indicate some notable subgroup differences. Those analytics will be covered in detail in our next paper.

Career Network was the least influential among several subgroups: Women, Whites, Blacks, Conservatives, and those with an income over \$24K, a High School Diploma, or a master's degree. The *Spiritual Network* scored as the least influential and most controversial with the lowest income group, White Men, Liberals, and Independents.

This study was also conducted to test the viability of *FastFocus* as a market research tool to help address public health challenges. It was demonstrated to be suitable for several reasons. It is research-subject friendly because it is fast and easy. It is attractive for younger cohorts and quicker and more budget-friendly than other methods, which is of particular value for public health agencies and others with budget constraints. Finally, it delivers actionable insights in real-time, flexibility currently lacking in public health, especially when fast-moving issues emerge, such as during a pandemic or other public health emergency.

This paper will address the limitations of traditional market research, how the *Fast Focus* methodology corrects for those, the results of the study, and its implications for studies of other public health priorities. An overview of the eight networks is provided for those unfamiliar with that framework.

Market Research Pain Points

Market researchers and their clients are bedeviled by several pain points created by traditional methodologies.

Long Research Cycle Times

It can take months to complete traditional market research studies. This deprives clients of research insights and is particularly burdensome when clients need them to optimize business operations, especially in highly competitive markets.

Time-Starved Respondents

Traditional methods take time, and people are busy even at the best times. They are unwilling or unable to complete surveys, especially when surveys are long, which is a substantial barrier to completing studies directed at younger cohorts.

Cost

Traditional methods are costly.³ That makes them unsuitable for repeat studies as products, messages, and packaging ideas are designed, refined, and optimized for targeted market segments.

³ A minimum of \$25,000.

Limited Insights

Traditional methods provide insights about what people think, which can be helpful, but they fall short in predicting behavior, which is the ultimate goal.

Diluted Insights

Traditional methods have recently adopted some new, “agile,” short surveys that correct for some weaknesses involved in long surveys with time-starved respondents. They sacrifice depth for engagement, however, and rarely do those offer compelling stories to present to senior management along with data insights.

FastFocus Methodology

The *FastFocus* approach addresses the current shortcomings in traditional market research. Over the past five years, it has been used in more than 200 studies by 15 global brands.

Short Cycle Times

Studies can be designed, programmed, and fielded in less than a day, and results are available in real-time.

Mobile-First

Respondents can use any internet-connected device but are mobile-first and can be completed in under four minutes.

Affordable

Studies are affordable, enabling clients to conduct them often to identify market opportunities and threats and as products, messages, and packaging ideas are designed, refined, and optimized for targeted market segments.⁴

Predictive Analytics

Studies provide insights into what respondents will do, not just what they think they would do because of the behavioral focus and predictive analytics. This is done via three highly intuitive metrics.

- A **Passion Score**[®] quantifies the percentage of customers who are *positively passionate* about an idea, message, or product.

⁴ A study such as the one described in this paper can be done for \$5,000.

- An **Idea Score** quantifies the average consensus about the likeability or general affinity of an idea, message, or product.
- A **Controversiality Score** quantifies the degree to which an idea, message, or product is polarizing; that is, the degree to which it is either liked or disliked in equal numbers.

The **Passion Score**[®] is the primary and most important metric and is supported by the **Idea** and **Controversiality Scores** which add essential depth and dimension.

To determine their utility, these scores have been validated in side-by-side studies by **FastFocus** clients. They have been found to produce comparable, if not better, results than traditional methods. In fact, in one study by **C Space** published in *Quirks*, the **Passion Score**[®] was found to be more useful than the Net Promoter Score.⁵ Additional technical analyses are available [here](#).

Score Summary

	Definition	Utility	Calculation
Passion	The percent of customers <i>positively</i> passionate about an idea, message, or product.	Indicates whether customers overall – or specific segments – are <i>positively</i> passionate about an idea, message, or product.	It is based on individual passion thresholds for each participant on an idea, message, or product they invested in. A Passion Score [®] above 30 indicates passion and purchase intent.
Idea	The average consensus about the likeability or general affinity of an idea, message, or product.	Indicates how well the general marketplace will receive the idea, message, or product overall. Combines with Passion Score [®] to understand those who like the idea but don't meet the threshold for passion.	It is based on the average number of positive, negative, or zero tokens assigned by respondents. A score of 100 equates to average likeability or general affinity. A score of 200 is 2X more likable.
Controversiality	The degree to which an idea, message, or product is polarizing; that is, either liked or disliked in equal numbers.	Combines with the Passion [®] and Idea Scores to determine how polarizing the idea is to help shape whether to accentuate or mute polarizing ideas, messages, or products.	It is based on the proportion of those who are positively passionate vs. those who dislike an idea, message, or product. A score of 100 indicates maximum polarization. A score of 0 indicates no polarization.

⁵ Schlack, JW., "Can Detractors also be Promoters? Study Attempts to Add Nuance to NPS's Likelihood to Recommend," Quirk's Marketing Research Review, July/August 2021, Volume XXXV Number 4, pp.

Compelling Presentations

Studies collect qualitative responses which enrich quantitative data, giving market researchers compelling stories to tell senior management. Just having the data, however, might not be enough for presentations to senior management. *FastFocus* offers video and deep, text sentiment analyses for those clients to enrich quantitative scores. This enhanced storytelling is done in partnership with [VoxPopMe](#)® to capture video verbatims from participants and with [CANVS](#) to deliver fast, reliable sentiment analysis. This provides a story reel grounded in quantitative data.



FastFocus Influential-Network Covid-19 Vaccination Study

Overview

A *FastFocus* study of the networks influencing an adult's decisions about whether to immunize themselves and, if they were a parent, their children to protect against Covid-19 was conducted from January 12-15, 2022. Respondents included 779 adults, including 487 with children under 18.

Like other *FastFocus* studies, it was designed, fielded, and analyzed from start to finish in under a week with a client, Dr. Glenna Crooks, who had no prior experience with this methodology. As in other *FastFocus* studies, this study – including among GenZ respondents – achieved a 90% engagement rate across a diverse demographic range of participants.

We secured *pro bono* respondent recruiting help from *Survey Healthcare Global*,⁶ and FastFocus and Dr. Crooks also provide *pro bono* resources. Ordinarily, a *FastFocus* study of this type could be completed for \$5,000 plus any third-party sample recruitment costs. This study was not conducted to verify respondents' vaccination actions concerning Covid-19 vaccination for themselves or their children. A follow-up study planned with participants in 3Q 2022 will answer that question.

Covid-19 Vaccine Study Steps

As is the case for *FastFocus* studies, this one was accomplished in four steps.

- **Step One.** This step is a call to action (CTA), explaining the question we want to answer. In this study, the CTA asked:

“People need support from others and lots of it, especially when they have busy lives and competing responsibilities in their families, careers, and communities. Support helps each of us individually and, in turn, helps all of us collectively.

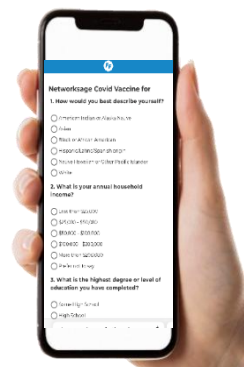


Our research shows that for the support we need, we rely on different networks of people. We would like to understand the networks you are the most likely (or the least likely) to rely on.

For this study, we would like to know what networks you rely on for decision-making about getting a coronavirus vaccine. If you don't have children, what networks would you rely on for decisions about yourself?”

- **Step Two.** The second step asks research subjects relevant demographic and behavioral questions to use later to segment the data for analytics.

In this study, the questions assured a diversity represented by gender, race, education, income, children's ages, political leanings, whether children had already been vaccinated for Covid-19, and, for unvaccinated children, their likelihood of doing so.



⁶ The authors would like to acknowledge Matt Walmsley of *Survey Healthcare Global* for his assistance. The quality of their respondents was an important contributor to the quality of the intelligence we garnered and allowed us to secure a participant group large enough to conduct valid subsample analyses.

- **Step Three.** The third step informs participants they had a fixed set of tokens to spend on one or more of the study's ideas, messages, or products. In this study, participants were shown each network and a list of those who would be part of those networks.

They received 1.5 tokens per Network for a total of 12 tokens and were instructed to use all of them. This creates scarcity that forces them to consider their options and make tradeoffs carefully and is a key factor contributing to the predictability delivered by the resulting analytics.

- **Step Four.** The fourth step asks respondents to say why they invested tokens as they did, adding a vital qualitative component and providing insights into the motivations and rationale behind their quantitative token spending.

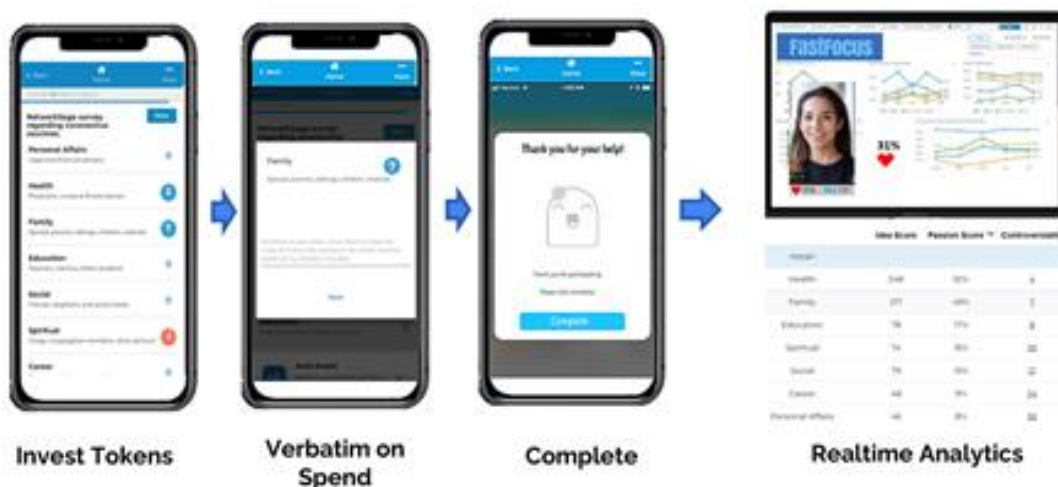
This feature helped Dr. Crooks see that the participants did not sufficiently understand the concept of a Ghost Network and, thus, did not produce valid, actionable insights about that network.

Networks

- **Family:** parents, siblings, or other relatives
- **Health and Vitality:** physicians, nurses, other health care providers
- **Education and Enrichment:** teachers, mentors, fellow students
- **Spiritual:** clergy, congregation members
- **Social and Community:** friends, neighbors, social media
- **Career:** co-workers, HR, boss
- **Home and Personal Affairs:** legal and financial advisors
- **Ghosts:** the deceased or others no longer in your life.

"Health professionals know more about the virus and the effects on people."

"Some are working for the government and have been lying to us for the money. Most have lost their integrity."



Results and Scores for the Study Population Overall

Real-time tracking of respondent data determined some important population segments were underrepresented and led to additional outreach by *Survey Healthcare Global*, which successfully recruited an adequate number of participants to allow for subsegment analyses. *FastFocus* analytics then generated three scores, all in real-time.

- **The Passion Score®.** This score differentiates among the top options and measures positive intensity, trust, and emotion about how respondents spent tokens. A higher score shows greater passion, with a score of 30% being the benchmark for passion. A score of 30% or greater signals that the choice made by participants should be seriously considered. Over time, *FastFocus* clients have validated that this score is key to predicting outcomes.

Passion Score™	
<total>	
Health	52%
Family	49%
Education	17%
Spiritual	16%
Social	15%
Career	9%
Personal Affairs	8%

In this study of Covid-19 vaccination decision-making, for all respondents, the *Health Network* (52%) and the *Family Network* (49%) had the highest scores. Both far exceeded the next two ranking networks: the *Education Network* (17%) and the *Spiritual Network* (16%).

The overall ranking of the Health Network as the most trusted, however, was driven by the strong passion of White Men. For other gender and ethnic groups, the *Health Network* and the *Family Network* were in a virtual tie for the more preferred network. This points to the value of conducting additional subgroup analyses, which are underway and will be the subject of a subsequent paper.

- **The Idea Score.** This score measures “likeability” or general affinity. The higher the score, the greater the likeability, with the mean likeability score being 100. This score is used as a “tie-breaker” when more than one item has a very similar *Passion Score®*.

Idea Score	
<total>	
Health	248
Family	217
Education	78
Spiritual	74
Social	79
Career	48
Personal Affairs	46

In this study of Covid-19 vaccination decision-making, for all respondents, two networks – the *Health Network* (248) and the *Family Network* (217) – were very likable.

Both far exceeded the next two ranking networks: the *Education Network* (78) and the *Spiritual Network* (74). Those two networks far exceeded the score for the *Career Network* (48). More about that later.

- **Controversiality Score.** This score measures polarity or the degree to which the items – that is: ideas, products, packaging, messengers, or messages – are liked vs. disliked. A higher score shows greater polarization. A score of 100 indicates the highest level of polarization; in other words, people either love it or hate it. There is no in-between. The lower the score, the less polarizing the item.

In the study of Covid-19 vaccination decision-making, for all respondents, the *Health Network* (4), and the *Family Network* (7), are the least polarizing. The *Education Network* (8) is a close third. All three are far less polarizing than the *Spiritual Network* (Score=26) and especially the *Career Network* (34).

	Controversiality
<total>	
Health	4
Family	7
Education	8
Spiritual	26
Social	21
Career	34
Personal Affairs	36

FastFocus Analytics

Real-time tracking of respondent data determined some important population segments were underrepresented, which led to additional outreach by *Survey Healthcare Global* and successful recruiting of additional participants, allowing us to do subgroup analyses by other segments and subsegments, especially by ethnicity. That allowed us to see greater differentiation among the top choices and more accurately identify passionate subgroups.

- **Greater Differentiation Among Top Choices.** Based on the *Passion Score*[®], all respondents combined indicated the *Health Network* (52%) and the *Family Network* (49%) were the most trusted. Those *Passion Scores*[®] showed a preference over the third-ranked *Education Network* (17%) and the fourth-ranked *Spiritual Network* (16%).

However, this result should be interpreted with caution because it was driven by the strong passion of White Men. As noted earlier, for other gender and ethnic groups, both the *Health Network* and the *Family Network* were in a virtual tie as the most preferred network. This points to the value of conducting additional subgroup analyses, which are underway and will be the subject of our next paper.

- **More Accurate Identification of Subgroups.** Black Women rated their *Health Network* as more controversial and polarizing (*Controversiality Score* of 20) than participants overall (*Controversiality Score* of 4). This finding is consistent with studies describing their experiences of poor-quality care and health outcomes. Compared with White Men, all other ethnic and gender subgroups and conservatives rated their *Family Network* – rather than the *Health Network* – as the most influential.

- Score Summary.** Taking all the scores into account, for all respondents in total, the *Health Network* was the one they chose most often for advice about Covid-19 vaccination, a finding, as we have noted, that is driven by the strong passion of White Men. For all respondents, this was followed by the *Family Network*, which ranks first for all other gender and ethnic subgroups. This is

	Passion Score™	Idea Score	Controversiality
<total>			
Health	52%	248	4
Family	49%	217	7
Education	17%	78	8
Spiritual	16%	74	26
Social	15%	79	21
Career	9%	48	34
Personal Affairs	8%	46	36

based on the high *Passion Scores*® and *Idea Scores* (both above the mean or benchmark for *FastFocus* studies) they gave those two networks while at the same time assigning them very low *Controversiality Scores*.

Meanwhile, seeking guidance from *Personal Advisors* (e.g., attorneys, accountants) in the *Home and Personal Affairs Network* or a *Career Network* (e.g., bosses, colleagues) ranked lowest overall as a network influencer. Those networks received low *Idea Scores*, low *Passion Scores*®, and high *Controversiality Scores*.

The *Career Network* is the least influential among Women, Whites, Blacks, Conservatives, and those with incomes over \$24K, a High School Diploma, or a master’s degree. The *Spiritual Network* scored as the least influential and most controversial with the lowest income group, White Men, Liberals, and Independents.

Qualitative Enhancements

Respondent verbatims indicate why respondents invested tokens, adding important insights to other scores, especially the *Passion Score*®. These will be addressed in our next paper on segment and subsegment analytics.

Though this study focused on the “messengers,” verbatims point to “messages.” A previous study is an example. In that case, *FastFocus* tested the packaging of a CBD remedy for dogs. The remedy did not score well initially, and the verbatims indicated why. “Pharma-style” packaging touted the product as effective, “like a medicine.” That led respondents to say their dog would not eat it. On the other hand, brands with the best *FastFocus* scores emphasized both “effectiveness” and “deliciousness” in their packaging. Insights such as those informed the client, who changed their package accordingly, increased their *Passion Scores*® close to the top of the pack, and most importantly, grew their sales.

Why Study Networks?

We live and work within multiple networks, each composed of people who support us. Each network is essential and has a role to play in securing long, healthy, satisfying life. At times, however, one network may become more important than others. For example, when a child is diagnosed with a serious disease, the child's *Health Network* will become far more important than the parent's *Social Network*. On the other hand, if children are healthy and the parent is looking for a new job, their *Social Network* should assume greater importance since research has shown that the principal source of new jobs is "friends of friends."

Understanding this is important for several reasons.

- **Networks influence.** Networks influence many aspects of our health, including mood, weight gain, smoking, substance abuse, violence, and suicide, as has been demonstrated by network science studies by such experts as Nicholas Christakis, MD. They do this by sharing information and exerting social pressure to conform to a group's norms. We benefit when the information is accurate and social pressure supports safe and healthy behaviors, but the opposite can also occur.
- **Networks Are Determinants of Health.** The Network Determinants of Health (NDOH) are far more modifiable than the Social Determinants of Health (SDOH)⁷ which are not easy targets for health care interventions. Working at the network level with the quantity and quality of people's connections is far more actionable and efficient for health care providers and empowering for patients and families.
- **Increasingly Complexity and Sources of Conflict.** Networks are increasingly diverse in today's hypermobile, connected world. Most people live, work, and socialize in networks with different and conflicting values and world views.

We observed these network dynamics since public health measures were instituted during Covid-19. Some networks embraced mask-wearing and vaccination; others did not. Some spread accurate information, but not all networks did. Some people hid their vaccination status from others in their networks, including those in their *Family Network* who rejected available vaccines. Some people experienced what parents have for many years concerning routine childhood vaccines. The views about vaccines held by people in some of their networks – for example, their *Social Network* or *Spiritual Network* – clashed with the pediatrician's recommendations in their child's *Health Network*.

⁷ SDOH includes factors such as education, zip codes, and gun ownership.

Implications for Covid-19 Vaccination Decisions

Three elements contribute to the successful management of a pandemic: communication, trust, and a shared sense of threat. Since the start of this pandemic, we have used traditional messengers to accomplish that, and the public's response is clear: it's not working well enough.

The pandemic is not over, nor is it the only pressing public health concern. We need to keep at it and do it better in that and other areas of public health concern. This study suggests a new, simple, fast, affordable way to do that.

Reinforce Trusted Connections

These results suggest we should continue reinforcing White Men's trust in their Health Network and all other ethnic and gender groups in their *Family Network*. Unfortunately, this study addressed only each network, not the many individual connections people have within them. This is why a deeper dive into those networks is the intention of the second study we plan on this same population sample.

Act on the Messenger Preferences of Black Mothers

The results of this study align with other studies and reports of institutional racism and poorer health outcomes experienced by Black Mothers. The low and controversial ratings they gave to their *Health Network* were not unexpected, but they are troublesome and unlikely to change for the better during Covid-19. We must explore new ways to communicate through the *Family* and *Education Networks* they trust.

Conduct Additional Studies

Additional *FastFocus* studies can provide helpful new insights in four areas related to Covid-19 vaccination.

- **Needs of diverse populations.** Studies should account for the diversity of communities we serve. This would include studies of single-parent families and non-native English-speaking individuals, for example.
- **Top-performing networks.** Studies should dive deeper to learn more about the top-performing networks. For example, knowing that the *Family Network* ranks first or second as a network influencer is helpful, but message campaigns will be more efficient if we know which person or people within the *Family Network* are the most important influencers. Is it the spouse or life partner? Siblings? Vaccines are sometimes viewed as victims of their success, underappreciated by younger cohorts with no personal experience of vaccine-preventable disease. Might grandparents – especially Maternal Grandmothers – be influential? If so, is this another indicator of “the Grandmother Hypothesis,” which has

shown the presence of a grandmother improves the chance a baby will survive, even in wealthier nations? Likewise, what specific types of people in the *Health Network* are most influential with White Men? Is it a physician? A pharmacist?

- **Bottom-performing networks.** Studies should dive deeper to learn more about the bottom-performing networks. Who is the least influential and most controversial within the *Career Network*? Co-workers? Human Resources? Government regulators? Some companies successfully immunized virtually all employees before mandates were enacted. Did employer mandate conflicts emerge because they were imposed by government requirements and not voluntary? Or were other dynamics at play?
- **Other drivers of hesitancy.** Studies should explore the types and drivers of Covid-19 vaccine hesitancy. People are vaccine-hesitant for at least a dozen different reasons that surfaced during the pandemic. We do not understand the nuances of those. Some might be addressed with new messages and messengers. Others might not and may require other public health and healthcare system changes.

Beyond the Pandemic

As already mentioned, network science has demonstrated that various behavior-related health conditions are transmitted via networks, like an infectious disease agent. Knowing which networks can influence healthy behaviors will provide the insights to imagine new types of network-informed interventions.

Are *FastFocus* methods a viable way to explore those public health issues? Yes, and a variety of features make it an attractive approach.

- **Short cycle time.** The ability to design and program the study so quickly is an important advantage for situations like the Covid-19 pandemic, which required many pivots as schools and workplaces closed and opened, and eventually, vaccines were recommended for various age groups.
- **Mobile first.** The ability of respondents to complete the survey on a mobile device in just a few minutes offered another advantage given the additional workload many people – especially parents – managed virtual school and work responsibilities.
- **Affordability.** Public health budgets are limited, and the competition for available funding is fierce. The lower cost of *FastFocus* studies offers public health officials a new opportunity for informed insights at a price they can more readily afford.
- **Analytics.** The three scores generated by this method offer helpful data points, and the studies demonstrating their validity mean there are no technical barriers to using it.

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- **Compelling presentation.** This paper mentions only two verbatims, one positive and one negative, about the *Health Network*. We did not produce a video, but we have read and analyzed the verbatims, which clearly show their value in helping to understand the rationale for the placement of tokens. A video of those would make a powerful presentation to senior executives and government hearings.

Our Collaborative Next Steps

We plan to complete additional work in the coming months.

- **Additional Analytics.** Using the data from this study, in subsequent papers, we will report separately on the segments for which we have enough data to draw early conclusions about network influencers. That includes screening for ethnicity, parental status, gender and ethnicity in combination, and gender and parental status in combination.
- **Additional Studies.** We also plan additional Covid-19 vaccine studies.

The first will be a deeper dive to help understand the key influencers within the *Family Network*. Those respondents in this study who identified the *Family Network* as the most influential will be asked which people within that network are the most influential, and weigh their relative importance, segmenting the results by ethnicity and gender, and then testing specific messaging to determine which are most effective for each segment.

The second will explore which types of people in the *Career Network* and the *Spiritual Network* are causing those two networks to be so controversial for so many market segments and whether that controversy is caused by the “messengers” within those networks or by the “messages” use, to gain insights into a possible resolution of the controversy.

About the Authors

Bill Bloom

Bill is the founder and CEO of *FastFocus*. He invented, designed, and developed a wide range of software products and solutions in his career. This included interactive adventure games for Disney, enterprise SAAS solutions, and mobile applications for FedEx, E-Trade, the FBI, and others. During those years, he saw that traditional market research was central and critical for each project but was not up to the task. That is why he built a better, faster research mousetrap.

Glenna Crooks, Ph.D.

Glenna was a Presidential Appointee, responsible for public health, including vaccines. She was also the Global Vice President of Merck's Vaccine Business. As founder and CEO of Strategic Health Policy International, Inc., I was a consultant to vaccine companies and governments worldwide, addressing tough immunization system challenges. She is currently co-Founder of the CogentSage Group, and her groundbreaking ethnographic research on support networks is the topic of her latest book, "The NetworkSage: Realize Your Network Superpower."

Appendix: Network Framework

Eight networks support adult life and work. The first five of these eight networks are called *birthright networks* because we are born into them.

- **Family Network** This network includes the family of origin and other families that a parent has been part of, including the one they create for their children and any former families from past relationships. This network bore the brunt of the pandemic more than most others.
- **Health and Vitality Network** This network includes those who help people be healthy, fit, and look good. Studies show that health is a more significant predictor of wealth than education, and attractive people make \$25K more than unattractive people, making this a more important network than most people realize. The pandemic disrupted this network when vaccines were allocated by geography (rather than by health system), and mass vaccination centers became the delivery site of choice by national policy.
- **Education and Enrichment Network** This network includes all levels of formal education, including daycare, pre-school, and before- and after-school care programs. This network was among the most disrupted for Family Networks and, because of that, for Career Networks employing parents during the pandemic.
- **Spiritual Network** This network includes those in congregations and houses of worship or others outside those formal settings focusing on what is spiritual and meaningful in life. This network supports humankind's search for meaning, particularly during difficult times and in the face of inexplicable events. In that case, it's no wonder canceling in-person services resulted in so much pushback.
- **Social and Community Network** This network includes neighbors, friends, and those in the community, clubs, civic organizations, and social media platforms. This network offers safe water, streets, access to healthy food, and mass transit. Public health systems that provide testing and vaccination programs are part of this network.

The next three are called Coming-of-Age Networks because they form as people leave home, finish school, become financially independent, find a mate, and have a child.

- **Career/Job Network** This network includes people in a workplace: bosses, direct reports, colleagues, and cross-functional or support teams. It also consists of a company's clients, customers, and suppliers. No network has been immune to pandemic disruptions, but this is one of the sources of near-daily stories about how we adapted to new ways of working.
- **Home and Personal Affairs Network** This network includes those who help protect, maintain, and improve household and personal property, not just with "hands-on" services like roofing or plumbing but also with skilled legal and financial advice. Glenna's research revealed that this was one of the most underdeveloped of most adults' networks.
- **Ghost Network** This network includes people who are not currently physically present in a person's life because they have passed away, moved away, or drifted away as life changed. Before they left, however, they created impressions that affect decision-making in the present time. For example, Dr. Crooks' youngest brother died at 45 from a vaccine-preventable disease. That painful experience continues to influence three generations of the family, making them more alert to new vaccines when they become available.