From Health Literacy to Health Misinformation: A Journey Through Health Communication Research

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Abstract

I was invited to give a talk about the development of my work in health communication, and this article reflects the intellectual themes that have shaped that trajectory. The narrative moves from early philosophical foundations to empirical research examining how cultural, cognitive, and relational factors influence health behavior. Early studies on antibiotic misuse and regional differences in organ-donation attitudes in Switzerland highlighted the role of micro-cultural contexts. Building on the Health Empowerment Model developed with Kent Nakamoto, the article outlines distinctions among functional, declarative, procedural, and judgment-based health literacy and shows how these forms of literacy interact with empowerment in predicting patients' decisions. Particular attention is given to the risks posed by highly empowered but poorly informed individuals – "dangerous self-managers." The article concludes by differentiating between being uninformed and misinformed in today's digital environment and by emphasizing the need for corrective strategies tailored to each condition.

Keywords: Health literacy; Patient empowerment; Misinformation; Judgment-based literacy; Digital health communication.

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Introduction

Let me begin by expressing my heartfelt gratitude to the Dean of the Communication Department, Professor Chun-Fu Chen, for his very special invitation to serve as the Fubon Chair Professor at Fu Jen Catholic University, Taipei. This invitation is both a great honor and a personal privilege, and I sincerely hope that the time I spent at the department in 2025 will lead to the realization of some of the research plans and collaborative activities we discussed and designed together. My thanks also go to Professor Debbie Wu, whose friendship I have cherished since her tenure as Dean of the department, when she first invited me to Taiwan several years ago. I am equally grateful to Professor Ching Yin Ip for meticulously planning and organizing every aspect of my visit, and to Professor Angela Chang—not only for her willingness to respond to my thoughts during my stay, but also for our ongoing collaboration that has now spanned more than a decade.

It was at the suggestion of the Dean and Professor Ip that I have written this article, drawing from the talk I gave to the faculty in June 2025. They encouraged me to frame my presentation in a way that would weave together an overview of my research with personal reflections on my academic journey—offering, in effect, a look back at some of the milestones that have shaped my path in academia. This explains why, rather than presenting a strictly conventional academic article, the following pages combine scholarly discussion with occasional personal notes.

The trajectory of my academic career has been shaped as much by philosophical inquiry as by empirical research in the social sciences. At the outset, I was profoundly influenced by the *Socratic paradox*, most famously articulated in Plato's *Apology* (22d) as: *"I know that I know nothing"* (Jowett, 2012). According to the Oracle of Delphi, Socrates was the wisest man in Athens, not because he possessed more knowledge than others, but because he was aware of the limits of his own understanding. My philosophy professor, Wolfgang Wieland (1982), explored this epistemic humility in his book *Platon und die Formen des Wissens* ("Plato and the Forms of Knowing"), distinguishing between different modes of knowing.

The British philosopher Gilbert Ryle had already shaped this discourse before Wieland by differentiating between *know-that* (declarative or propositional knowledge) and *know-how* (practical, tacit, or procedural knowledge) in his seminal work *The Concept of Mind* (2009). *Know-that* refers to the possession of beliefs that are justified and, ideally, true, whereas *know-how* involves embodied skills and practices that cannot easily be proven wrong in the same way propositional statements can. This distinction has far-reaching implications for understanding human communication and decision-making, particularly in health contexts.

My own research path took a decisive turn after being appointed Professor of Semiotics at the Faculty of Communication at the University of Lugano. It was there that I transitioned from theoretical work in semiotics and philosophy to empirical research in health communication. Two colleagues—Kent Nakamoto and James (Jim) Jaccard—were instrumental in this transformation. They introduced me to the methodological foundations of the social sciences, including research design and statistical analysis, equipping me with the empirical tools to address complex questions about health literacy, patient behavior, and the dynamics of information in healthcare settings.

My first research project in health communication examined the factors influencing consumer behavior in the use of antibiotics. This focus emerged against the backdrop of one of the most pressing global health challenges: the increasing resistance of bacteria to antibiotics. Antibiotic resistance occurs when bacteria evolve mechanisms that protect them from the effects of these drugs, rendering once-effective treatments ineffective and leading to infections that are harder, and sometimes impossible, to cure. While resistance is a natural evolutionary process, it is accelerated by human behavior — particularly the improper use of antibiotics. This includes taking antibiotics without medical prescription, not completing the prescribed course, using leftover medication from previous treatments, or requesting antibiotics for illnesses, such as viral infections, for which they are ineffective.

Understanding how consumers contribute to this problem requires an investigation into their knowledge about antibiotics. Do people know what antibiotics are and how they work? Do they understand the consequences of misuse? And crucially, does greater knowledge translate into more appropriate behavior?

As part of this project, funded by the Swiss National Science Foundation, I conducted a nationally representative survey in Switzerland to assess public knowledge about antibiotics and their proper use. The findings revealed notable cultural and linguistic differences across the country's three main regions — Swiss German, Swiss French, and Swiss Italian. In particular, knowledge levels and correct beliefs about antibiotic use varied significantly between these groups, suggesting that cultural and regional contexts shape both awareness and potential behaviors.

Two years later, I repeated the survey to determine whether these patterns persisted. The results were strikingly consistent with the earlier findings: knowledge disparities between linguistic-cultural regions remained, pointing to deeply rooted differences in how antibiotics are understood across Swiss society. These Swiss results are also consistent with broader European patterns reported in other studies, which have shown a marked "knowledge gradient" between Northern and Southern Europe: in general, populations in Northern countries are less willing to request and consume antibiotics compared to their Southern counterparts. After all, cultural factors — including differences in knowledge —

seem to play a decisive role in shaping antibiotic-related behavior (Filippini et al., 2013).

Organ Donation: Micro-Cultural Differences in Switzerland

Over the past half century, advances in medical science have made organ transplantation a life-saving procedure for individuals suffering from severe organ failure. A donated heart, kidney, liver, or other vital organ can significantly prolong and improve the quality of life for recipients. Yet, despite the progress in surgical techniques and immunosuppressive treatments, a persistent challenge remains: the shortage of available donor organs. Across the world, the number of patients on waiting lists for transplantation far exceeds the supply of organs from deceased donors. To provide you with data from Switzerland: The urgency of the topic is underscored by the most recent figures: in 2022, more than 1,442 people in Switzerland were waiting for a donor organ, yet only 570 patients received one. While the number of people on the waiting list continues to rise, the number of available donors has remained essentially stable, leading to tragic outcomes — in the same year, 83 patients died while still on the waiting list.

This shortage calls for action at multiple levels. Policy measures have included legislative frameworks such as opting-in and opting-out systems. Under an *opting-in* system, individuals must explicitly consent to organ donation — typically by signing an organ donor card or registering in a donor database — before their organs can be used after death. In an *opting-out* (or presumed consent) system, all individuals are considered potential donors unless they have formally recorded their objection. In addition to legal frameworks, health communication strategies — such as public information campaigns — aim to increase awareness, improve knowledge, and ultimately enhance the willingness to register as an organ donor.

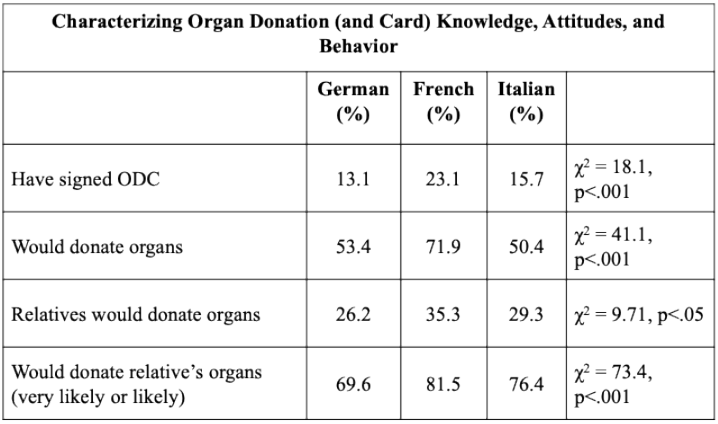
Health communication scholars across many countries have investigated the drivers and barriers to organ donation. My own interest in this topic, developed within a research project funded by the Swiss National Science Foundation, centered on whether *micro-cultural differences* between Switzerland's three main linguistic and cultural regions — Swiss German, Swiss French, and Swiss Italian — influence organ donation behavior. Switzerland is a particularly interesting case: compared to other European countries, its rate of organ donation from deceased persons is relatively low, and this rate has remained stubbornly stable for the past 25 years despite repeated national awareness campaigns.

Even more intriguing is the regional variation within Switzerland. In the early 2000s, official statistics consistently showed that the organ donation rate in the Swiss German region hovered between 8 and 10 donors per million inhabitants, slightly higher in the Swiss French region, and strikingly high in the Swiss Italian region. The latter's donation rate was second only to Spain — the global leader in organ donation. This stark contrast prompted a central research question: *Why are Swiss Germans and Swiss French consistently less willing to become organ donors compared to Swiss Italians?*

When I discussed these patterns with academic colleagues in medicine from the Swiss German region, the most common hypothesis they offered was religious affiliation. They assumed that the predominantly Catholic population of Ticino (the Swiss Italian canton) would be more willing to donate organs than populations in the other two regions, where Protestant and mixed religious backgrounds are more common. However, our data contradicted this explanation. In our representative survey, those who reported no religious affiliation and expressed disbelief in any form of life after death were, in fact, *more willing* to sign an organ donor card than religious respondents.

This finding shifted the focus back to our original research questions: Could the large cultural differences in willingness to donate be linked to differences in knowledge? If so, could identifying the relevant knowledge gaps — and understanding how they relate to attitudes and willingness — help design more effective interventions to increase donor registration?

Table 1: Characterizing Organ Donation (and Card) Knowledge, Attitudes, and Behavior



Characterizing Organ Donation (and Card) Knowledge, Attitudes, and Behavior

	German (%)	**French (%)**	**Italian (%)**	
Have signed ODC	13.1	23.1	15.7	$\chi^2 = 18.1$, $p<.001$
Would donate organs	53.4	71.9	50.4	$\chi^2 = 41.1$, $p<.001$
Relatives would donate organs	26.2	35.3	29.3	$\chi^2 = 9.71$, $p<.05$
Would donate relative's organs (very likely or likely)	69.6	81.5	76.4	$\chi^2 = 73.4$, $p<.001$

The Behavior Gap

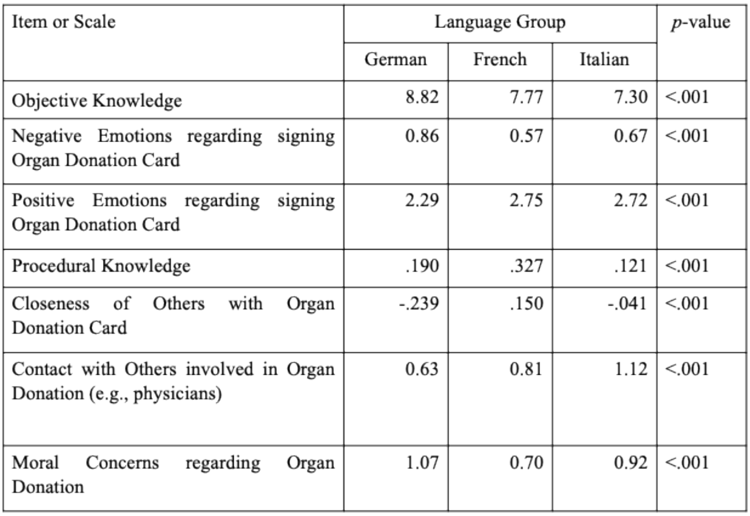
Table 1 of our survey results provides an initial — and partly surprising — picture. When asked whether they had ever signed an organ donor card, the Swiss Germans (13.1%) and Swiss Italians (15.7%) reported similar levels, while Swiss French respondents (23.1%) were significantly more likely to have signed. A similar pattern emerged regarding *willingness to donate*: Swiss Germans (53.4%) and Swiss Italians (50.4%) again reported similar figures, whereas the Swiss French showed a much higher willingness (71.9%).

This discrepancy between *willingness* and *actual behavior* — sometimes referred to as the behavior gap — is particularly striking in the Swiss French region: despite expressing greater willingness to donate organs than either of the other two groups, actual donation rates in this region remain lower than in the Swiss Italian region.

Cultural Predictors of Willingness

Table 2 of our analysis digs deeper into potential cultural predictors of willingness to sign an organ donor card. Further analysis of the predictors of willingness to sign an organ donor card revealed clear cultural differences. Objective knowledge about organ donation was found to be highest among Swiss Germans and lowest among Swiss Italians. When considering procedural knowledge — that is, familiarity with the steps required to become an organ donor — Swiss French respondents scored highest, whereas Swiss Italians were the least knowledgeable. Emotional responses to the topic also varied: negative emotions were most pronounced among Swiss Germans, least pronounced among Swiss French respondents, with Swiss Italians falling in between. Conversely, positive emotions were lowest in the Swiss German group, while Swiss French and Swiss Italians reported similarly high levels. Moral concerns about organ donation followed a different pattern, being strongest among Swiss Germans, somewhat lower among Swiss Italians, and lowest among Swiss French respondents. Finally, social connectedness to the issue — measured by whether respondents knew someone who had signed a donor card or had discussed the topic with others — emerged as an important predictor of willingness. This connection was particularly strong in the Swiss Italian region, while Swiss Germans were least likely to have such personal links to organ donation.

Table 2: Organ Donation Knowledge, Emotions, Social Influences, and Moral Concerns Across German-, French-, and Italian-Speaking Participants



Item or Scale	Language Group			*p*-value
	German	French	Italian	
Objective Knowledge	8.82	7.77	7.30	<.001
Negative Emotions regarding signing Organ Donation Card	0.86	0.57	0.67	<.001
Positive Emotions regarding signing Organ Donation Card	2.29	2.75	2.72	<.001
Procedural Knowledge	.190	.327	.121	<.001
Closeness of Others with Organ Donation Card	-.239	.150	-.041	<.001
Contact with Others involved in Organ Donation (e.g., physicians)	0.63	0.81	1.12	<.001
Moral Concerns regarding Organ Donation	1.07	0.70	0.92	<.001

These findings suggest that willingness to donate is not determined by a single factor such as knowledge or religion, but rather by a complex interplay of knowledge types, emotional responses, moral considerations, and social connectedness to the topic. And each of these factors plays a different role across the three linguistic regions when predicting willingness to support organ donation. Two results are particularly noteworthy. First, for both Swiss Germans and Swiss French, being informed about organ donation emerges as an important predictor: the more factual knowledge they possess, the more favorable they are toward becoming an organ donor. In contrast, for Swiss Italians, knowledge does not play a positive role; in fact, the relationship is slightly negative — the more they know, the less willing they appear to be to sign an organ donor card, although this tendency is not statistically significant. Procedural knowledge — knowing how to become an organ donor — also shows a culturally specific pattern: it is a strong predictor for Swiss Germans, but does not significantly influence willingness among either Swiss French or Swiss Italians. The other striking result concerns social connectedness. For Swiss Italians, closeness to others who have already signed a donor card, or personal discussions with people involved in organ donation, strongly increases their own willingness to sign. This variable is far less influential in the Swiss German and Swiss French regions, underlining that in the Italian-speaking part of Switzerland, interpersonal relationships and social proximity to the issue play a decisive role in shaping organ donation intentions.

Apparently, for different cultural groups we can notice different patterns of behavior. Many other researchers have examined, for example in the United States, how ethnic differences influence health behavior. However, our case is distinct in that the only differentiating factors between the three groups are their language and culture. Based on these findings, I coined the term micro-cultural differences to describe how such intra-national cultural distinctions can shape health-related behavior.

Why does this matter for communication scholars? As we know from targeting and tailoring communication, the more precisely you understand your audience, the more effectively you can reach them with messages that are relevant, persuasive, and culturally resonant. Previous information campaigns on organ donation in Switzerland may have fallen short precisely because they were typically conceptualized and designed in the predominantly Swiss German region and then merely translated into French and Italian — without adapting content or framing to the distinct cultural profiles of these audiences.

To test whether culturally tailored interventions would outperform a uniform, one-size-fits-all approach, we conducted an experimental study comparing three types of information flyers about organ donation. Each flyer emphasized a different persuasive route: (1) Information-driven — providing factual knowledge about organ donation; (2) Emotion-driven — using emotional narratives to elicit positive feelings about organ donation; (3) Social connectedness-driven — highlighting interpersonal connections and altruistic motivations.

We hypothesized that: (1) the information flyer would be most effective among Swiss Germans; (2) the emotional flyer would be most effective among Swiss French and Swiss Italians; and (3) the social connectedness flyer would be particularly persuasive for Swiss Italians. We further expected that: (4) the information-based flyer would have little to no positive effect for Swiss Italians, and (5) the Swiss Germans might react negatively to both the emotional and the social connectedness flyers. The experiment used a 3 (German – French – Italian) × 3 (information – emotion – social connectedness) between-subjects design, with willingness to sign an organ donor card as the dependent variable and a two-week follow-up measure to test the sustainability of the effect.

The results supported several of our predictions. For Swiss Germans, the information flyer not only increased the perceived credibility of the message but also enhanced their willingness to sign an organ donor card and to seek further information — confirming that for this group, being well-informed is a central driver of behavior. By contrast, both the emotional and social connectedness flyers reduced their willingness to sign. The opposite pattern emerged for Swiss Italians: emotional and connectedness appeals were more effective than factual information, which in some cases even reduced willingness. For Swiss French participants, the findings were mixed, with no single flyer type consistently outperforming the others.

Taken together, these results challenge the assumption that increasing knowledge is always the most effective intervention to change behavior. Instead, they suggest that in contexts marked by micro-cultural differences, tailoring the type of message to the cultural profile of the audience may be critical for achieving meaningful change.

From Knowledge to the Broader Landscape of Health Literacy

It is only a short conceptual step from focusing on knowledge related to specific health topics to situating that knowledge within the broader framework of health literacy, a field that has gained considerable prominence over the past 30 years. Health literacy is now recognized as a crucial area of inquiry not only for health professionals but also for communication scholars, given its direct implications for how health information is accessed, understood, and used by diverse audiences.

This expansion mirrors a broader societal trend: we live in what could be described as an "age of literacies." Over recent decades, various domains of life have been framed through the lens of literacy, leading to the development of terms such as financial literacy, media literacy, computer literacy, and digital literacy. Each of these emphasizes the need for specialized competencies to navigate increasingly complex environments — and health literacy has emerged as a parallel and equally vital domain.

A widely used definition describes health literacy as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" (U.S. Department of Health and Human Services, 2000). This definition underscores that health literacy is not merely about possessing information, but about being able to critically engage with that information, apply it to personal health contexts, and act on it effectively.

Why does health literacy matter? The evidence is both broad and compelling. Thousands of studies in the health sciences have demonstrated that health literacy is strongly linked to a variety of health outcomes. For example, patients with higher levels of health literacy tend to report better overall health status; they are also less likely to be hospitalized unnecessarily, and less likely to delay hospitalization when it is needed. Furthermore, high health literacy is associated with better adherence to medical advice, more effective self-management of chronic diseases, and greater participation in preventive health behaviors. Conversely, low health literacy has been linked to medication errors, poorer disease management, higher healthcare costs, and increased mortality risk. These findings firmly establish health literacy as a key determinant of public health — and a central concern for health communication research and practice.

There is one question in the field of health literacy research that particularly captured my interest — and that of my colleague Kent Nakamoto, with whom I have shared a long-standing research collaboration that has resulted in numerous publications. Many researchers in this area operate on the assumption that if we succeed in increasing patients' health literacy, we will naturally also enhance their empowerment. In other words, their implicit model is: health literacy → patient empowerment. This assumption has often been the primary motivation for conducting research in the field.

However, Kent and I fundamentally disagreed with this linear view. Simply put, the fact that someone has low health literacy does not necessarily mean that they are also low in empowerment; conversely, highly empowered individuals are not automatically also highly health literate. This distinction became the foundation for our own theoretical framework, the Health Empowerment Model, illustrated in Figure 1.

Figure 1: Conceptual Framework Illustrating How Health Literacy and Empowerment Shape Patient Behavior

		Psychological Empowerment	
		Low	**High**
Health Literacy	**Low**	High-needs Patient	Dangerous Self-manager
	High	Needlessly Dependent Patient	Effective Self-manager

Building on my previous research, we conceptualized health literacy as a multi-layered construct encompassing four levels: (i) Reading and numeracy skills — the so-called functional health literacy; (ii) Declarative knowledge — what I have previously referred to as objective knowledge; (iii) Procedural knowledge — the know-how dimension; (iv) Judgment skills — the ability to evaluate information critically (Schulz & Nakamoto, 2013a, 2013b, 2022, 2024).

Similarly, we defined empowerment, based on previous research by Thomas and Velthouse (1990) as a multi-faceted construct, also with four dimensions: (i) Meaningfulness — perceiving health-related actions as significant and aligned with one’s values; (ii) Competence — feeling capable of performing the required actions; (iii) Self-determination — experiencing autonomy in health-related decisions; (iv) Impact — believing that one's actions can make a difference.

Our hypothesis was that these two constructs interact in a complex, non-linear fashion. Crucially, by treating health literacy and empowerment as distinct and independent, we were able to identify specific groups of individuals who are both highly empowered and yet have low levels of health literacy. We initially described these individuals as dangerous self-managers: people who are confident in managing their health, but whose actual knowledge is insufficient — leading them to make decisions based on mistaken beliefs. In a way, this represents the inverse of the Socratic paradox with which this article began: instead of knowing that they do not know, these individuals think they know when, in fact, they do not. We consider this particular combination — low health literacy coupled with high empowerment — to be a genuine risk factor for problematic health behaviors.

Following the conceptual development of the Health Empowerment Model, our next step was to empirically test its assumptions. Using representative survey data from various populations, Kent and I sought to explore the different combinations of health literacy and empowerment levels, and how these combinations translate into health-related behaviors. We developed a two-dimensional matrix, where one axis represented health literacy (low to high) and the other axis represented empowerment (low to high). This framework allowed us to identify four distinct patient profiles:

Low literacy / Low empowerment — often disengaged and at risk due to both lack of knowledge and low motivation or self-efficacy.

High literacy / Low empowerment — knowledgeable but lacking the confidence or agency to act upon that knowledge.

Low literacy / High empowerment — our so-called dangerous self-managers, confident in managing their health but guided by incomplete or incorrect knowledge.

High literacy / High empowerment — the ideal combination, representing informed and self-determined individuals who are most likely to engage in effective health behaviors.

Across multiple studies, we found that the dangerous self-manager profile was not an isolated phenomenon; in fact, in certain health domains, it represented a substantial proportion of the population. The problem with this group is not lack of motivation but misguided confidence — they may refuse medical advice, rely on misinformation, or take risky decisions because they believe they know better. For instance, in one study on medication adherence, individuals in the high-empowerment/low-literacy quadrant were more likely to deviate from prescribed treatment regimens compared to those with low empowerment, even when controlling for demographic factors. In another study focusing on preventive screenings, the same group showed a tendency to self-assess their need for medical tests based on non-expert reasoning, sometimes leading to delayed diagnoses.

These results have significant implications for health communication strategies. Traditional approaches to improving patient outcomes often assume that providing more information will suffice. However, our findings suggest that the relationship between knowledge and behavior is mediated by empowerment — and, critically, that high empowerment without adequate literacy can backfire. As a result, interventions should not only aim to raise knowledge levels but also to ensure that empowerment is grounded in accurate and comprehensive understanding.

The Internet as a Health Information Environment: Implications for the Health Empowerment Model

One of the most compelling domains in which to apply the Health Empowerment Model is the study of how consumers search for and use health information available on the Internet. Digital platforms have dramatically increased the accessibility of health-related content, enabling patients and consumers to actively participate in their healthcare decisions. However, this abundance of information presents specific opportunities and challenges that directly intersect with the core dimensions of health literacy and empowerment.

First, the sheer volume of health information available online can indeed assist patients in making healthcare decisions. Reliable websites, medical portals, patient forums, and scientific repositories offer unprecedented access to knowledge that was previously mediated almost exclusively by healthcare professionals. For patients with adequate functional and declarative health literacy, such information can expand their understanding of diseases, treatments, and preventive measures, thereby supporting more informed decision-making. From an empowerment perspective, this access enhances perceived competence and self-determination, as patients feel better equipped to engage in dialogue with healthcare providers and to take an active role in their treatment choices.

Second, even when online health information is of high quality, it is neither universal nor tailored to the unique circumstances of an individual patient. Medical advice and treatment recommendations often rely on aggregated population-level data, which may fail to capture the full spectrum of variation in patient characteristics, comorbidities, or lifestyle factors. Moreover, much of the available information is written for a “general” patient, neglecting the linguistic, cultural, and socio-economic contexts that shape health behaviors—an oversight that has been shown in our own research on micro-cultural differences in health decision-making.

Third, medications and treatments described online are not suitable for all patients; even when they are, they may not be effective for all. Variations in genetic profile, disease stage, drug metabolism, and interaction with other medications can all influence treatment outcomes. From the standpoint of the Health Empowerment Model, this limitation poses a particular risk for “dangerous self-managers” — individuals with high empowerment but low procedural or judgment-based health literacy — who may overestimate the applicability of a treatment they read about online and pursue it without appropriate medical consultation.

Fourth, the information environment on the Internet frequently lacks calibrated probability estimates that are relevant to specific patients. Treatment efficacy rates, side effect probabilities, and prognostic data are typically reported in broad statistical terms, without adjustment for a patient’s personal health profile. This absence of tailored risk–benefit probabilities can mislead patients into over- or underestimating the likelihood of desired outcomes. Judgment skills — a key dimension of our health literacy framework — become critical here, as patients must interpret generalized data in light of their own health situation, often without the guidance of probabilistic literacy.

Taken together, these four aspects highlight the essential interplay between health literacy and empowerment in the digital health information landscape. High-quality online content can foster informed, autonomous decision-making — but only when patients possess not just access to information, but also the literacy skills and judgment capacities to interpret it appropriately and apply it within the boundaries of their individual health needs. This reinforces the need for targeted interventions that not only improve the quality and relevance of online health information but also strengthen consumers’ procedural knowledge, judgment skills, and critical appraisal capacities.

From Being Uninformed to Being Misinformed: Two Distinct Failures of Health Literacy

In our most recent work, we have sought to advance the health literacy agenda by examining not just the levels of health literacy, but the ways in which health literacy can fail. This perspective allows us to contribute to a deeper understanding of how misinformation operates and why it remains such a persistent challenge in public health communication.

We distinguish between two forms of knowledge failure: being uninformed and being misinformed. While both can lead to flawed judgments and harmful decisions, they are fundamentally different in nature. Being uninformed occurs when a person simply does not know the answer to a health-related question. This state of "recognized ignorance" can stem from a lack of interest, a lack of ability, or limited access to relevant information. The uninformed individual may consciously acknowledge their lack of knowledge—an attitude captured in the Socratic paradox: "I know that I know nothing." While such a stance is not without risks, it has the advantage of fostering openness to new information and corrective education. In public health, uninformed individuals can often benefit from well-designed information campaigns or literacy programs that fill the knowledge gap. Tailored communication can be particularly effective here, because the audience recognizes that it needs guidance.

Being misinformed, by contrast, is a qualitatively different type of knowledge failure. It involves holding and believing false information—and doing so with confidence. Misinformed individuals may feel certain they are well-informed and capable of making sound decisions, when in fact their beliefs are incorrect and potentially dangerous. In the context of health behavior, such misinformation can be costly: it can reduce adherence to medical advice, increase the uptake of harmful or ineffective treatments, and foster distrust in legitimate sources of information.

The distinction matters greatly. Both groups—uninformed and misinformed—are at risk of making poor health decisions, but their cognitive starting points and openness to correction differ sharply. The uninformed person may accept new evidence readily; the misinformed person may actively resist it, particularly when the misinformation aligns with deeply held values or worldviews. This resistance is well documented in the literature on motivated reasoning and worldview defense (Lewandowsky et al., 2012).

Our research has further explored the consequences of these two knowledge states. Using vaccination as a test case, we found that higher objective knowledge was associated with more positive attitudes toward vaccination and greater willingness to vaccinate and recommend vaccination to others. Conversely, a higher prevalence of mistaken beliefs correlated with more negative attitudes, reduced willingness to follow physician recommendations, and lower likelihood of promoting vaccination. Crucially, these effects were magnified when overall objective knowledge was low—suggesting that misinformation is particularly harmful when not counterbalanced by correct knowledge.

Recognizing these differences also points to different remedies. For the uninformed, traditional education campaigns—whether in the form of mass media outreach, school-based programs, or targeted digital content—can be effective in building foundational knowledge. For the misinformed, however, the task is more challenging. It requires not only imparting correct information but also actively correcting mistaken beliefs, often by replacing them with alternative narratives that make sense of why the previous belief was wrong. Simply retracting misinformation is rarely sufficient; without a plausible replacement story, the cognitive gap left by the retraction may be filled again with the same falsehood.

In our own work, we have tested strategies to counteract such misinformation. In a series of experimental studies, we compared the effectiveness of different correction approaches—ranging from straightforward fact-checks to corrections enriched with explanations of why a claim was wrong and what the correct alternative is. Our findings suggest that corrections are more successful when they provide both (1) factual counter-evidence and (2) an explanatory replacement narrative that helps individuals integrate the new information into their mental model. This is particularly important for misinformed audiences, who may otherwise reject corrections as attacks on their beliefs.

Moreover, our follow-up data revealed that the durability of corrections varies: while some belief changes persist over time, others fade, especially if individuals continue to be exposed to the original misinformation. This highlights the importance of sustained, repeated corrective messaging and of designing interventions that are resistant to “backfire” effects—whereby corrections inadvertently reinforce the original falsehood.

Taken together, these studies reinforce the necessity of distinguishing between being uninformed and being misinformed. It is not enough to measure “how much” people know; we must also understand what kind of knowledge they hold, and whether that knowledge is correct. Only then can we design communication strategies that are fit for purpose—educating the uninformed, while skillfully dismantling the false certainties of the misinformed.

In sum, traditional measures of health literacy, which treat knowledge as a unidimensional construct ranging from “less” to “more” correct, miss a critical dimension: the nature of the knowledge failure. Whether a person is uninformed or misinformed shapes their openness to correction, the type of communication strategy required, and ultimately, the likelihood of behavior change. Understanding this distinction allows health communicators to design interventions that are not only informative but also responsive to the underlying cognitive state of their audience.

Closing Reflections

The arc from the Socratic paradox—“I know that I know nothing”—to the “dangerous self-manager” is more than a philosophical curiosity. It encapsulates the central challenge of modern health communication: not merely to fill gaps in what people know, but to ensure the correctness, relevance, and applicability of the knowledge they carry into their decisions. In an era of abundant yet fragmented information, the role of health communication scholars is not only to inform but also to safeguard against the risks of false certainty.

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From Health Literacy to Health Misinformation: A Journey Through Health Communication Research

Peter J. Schulz

摘要

我受邀發表一場演講，回顧我在健康傳播領域中研究工作的歷程，而本文闡述了塑造我研究軌跡的各項主題。本文從早期的哲學基礎出發，並逐步轉向實證研究，探討文化、認知與關係因素如何影響健康行為。早期關於抗生素誤用以及瑞士不同地區在器官捐贈態度上的研究，突顯了微文化脈絡所扮演的關鍵角色。在與 Kent Nakamoto 共同發展的「健康賦權模型」基礎上，本文說明了功能性、陳述性、程序性與判斷性的健康素養之間的區別，並展示這些不同形式的素養與賦權的交互作用，以預測病患的決策。文章特別關注一類風險族群——高度賦權但資訊不足的個體，即「危險的自我管理者」。最後，本文在當今的數位環境中區分了「資訊不足」與「受到錯誤資訊影響」的兩種狀態，並強調有必要針對不同情況，制定相應的矯正策略。

關鍵詞：判斷性素養、病人賦權、健康素養、數位健康傳播、錯誤資訊