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INTRODUCTION TO SERIES: INFORMING SCIENCE PERSPECTIVES ON FAKE NEWS

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It is no exaggeration to say that the cumulative effects of fake news – especially if it takes the form of defamation, privacy invasion, war propaganda and hate speech – can seriously undermine democratic societies. As such, it is a real danger. (De Baets, 2019)

This series of papers on Fake News: Bias, Misinformation, and Disinformation examines fake news from an Informing Science perspective. As such, the papers in this special series make novel contributions to the field by viewing the issues through the transdisciplinary lens of informing science. This series makes no claim to summarize or review all that has been written on this topic. Rather it provides a glimpse into this immense literature from the perspective of informing science.

It is one small step on the 20+ year quest by the editor to explore better ways to inform from an approach that transcends academic disciplines (Cohen, 1998, 1999) and a 20 year quest to understand the issues of how we become misinformed and disinformed (Cohen, 2000). The series provided here gains thrust for two reasons. One reason is that the study has become more popular with academicians due to the blathering of politicians and the attacks by national powers on democracy. The second reason is more mundane; without the deadline that the end-of-year affords, the papers would become richer, fuller, and more detailed.

What do we mean by taking an Informing Science perspective? There are numerous alternative perspectives to the study of fake news. This series acknowledges the massive contributions made by others working outside the informing science lens by people such as Gordon Pennycook and colleagues. The most highly cited paper on the topic takes an economics perspective and was published, appropriately enough, in the Journal of Economic Perspectives (Allcott & Gentzkow, 2017).

The phenomenon of fake news requires viewing it from viewpoints beyond any single discipline. The topic of fake news impacts so many parts of our lives that Lazer et al. (2018) assert that understanding fake news "requires a multidisciplinary effort." The 16 authors of that paper, which was published in the prestigious journal *Science*, explored fake news from the varied disciplines of its authors, which include network science, social science, government, law, political science, informatics and engineering, communications, government, psychology, and journalism.

Informing Science is one such multidisciplinary approach. It is the emerging transdiscipline that endeavors to find better ways to inform. Since its formation over 20 years ago, the solutions have been conceptualized in increasingly more sophisticated ways. One of the first and simplest of those ways

Editorial perspective
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in seen as Figure 1, a word model that posits that informing a **client** requires various steps: **selecting** facts, **processing** them to a level of detail appropriate for that client, **sequencing** the presentation of those facts, and **formatting** the presentation (including selecting the proper communications channels). To do this most effectively requires a firm understanding of the **needs** of the clients. For each of these bolded words, the devil is in the detail and the details typically call upon knowledge drawn from various disciplines, such as psychology, brain science, communication technology, sociology, and computer science. To the mind of this author, this simple, seemingly unsophisticated word model is extremely powerful in understanding the fake news phenomenon. To get people to believe fake information, select (or create) some disinformation, word it in an appealing way to attract attention, format it to meet the requires of the channel (be it the web or a newscaster), and present it to the person as an explanation. It is a start, but like all models, it fails to explain all the elements of informing (or in this case, disinforming). For instance, it fails to explain the "retweeting" of fake news. As an example, the fake news that a US presidential candidate ran a pedophile ring out of a pizza parlor was promulgated by "*ordinary people, online activists, bots, foreign agents and domestic political operatives. Many of them were associates of the Trump campaign. Others had ties with Russia. Working together – though often unwittingly – they flourished in a new 'post-truth' information ecosystem, a space where false claims are defended as absolute facts*" (Robb, 2017).

A SIMPLE WORD MODEL OF INFORMING SCIENCE

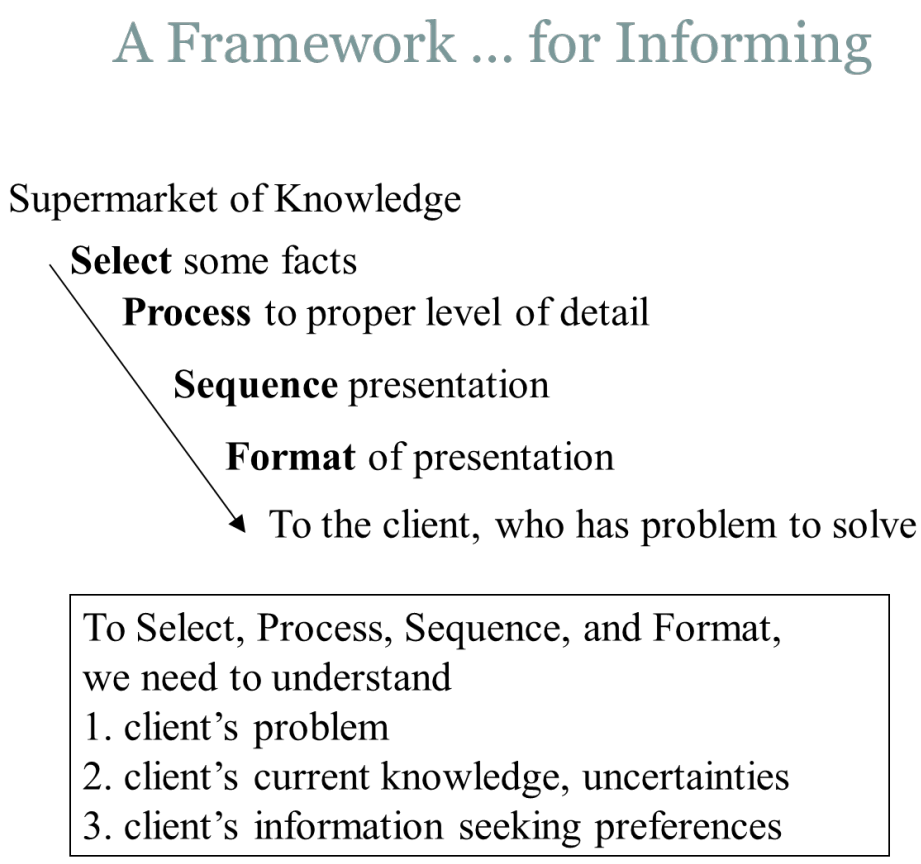

Figure 1. A Framework for Informing (Source: Cohen, 2000**)**

Another model of informing science is a three-level meta-model that provides an understanding of all transdisciplines, including informing science. A portion of that meta-model as applied to the topic of this series is shown in Figure 2. The series uses this model to organize the papers in the series.

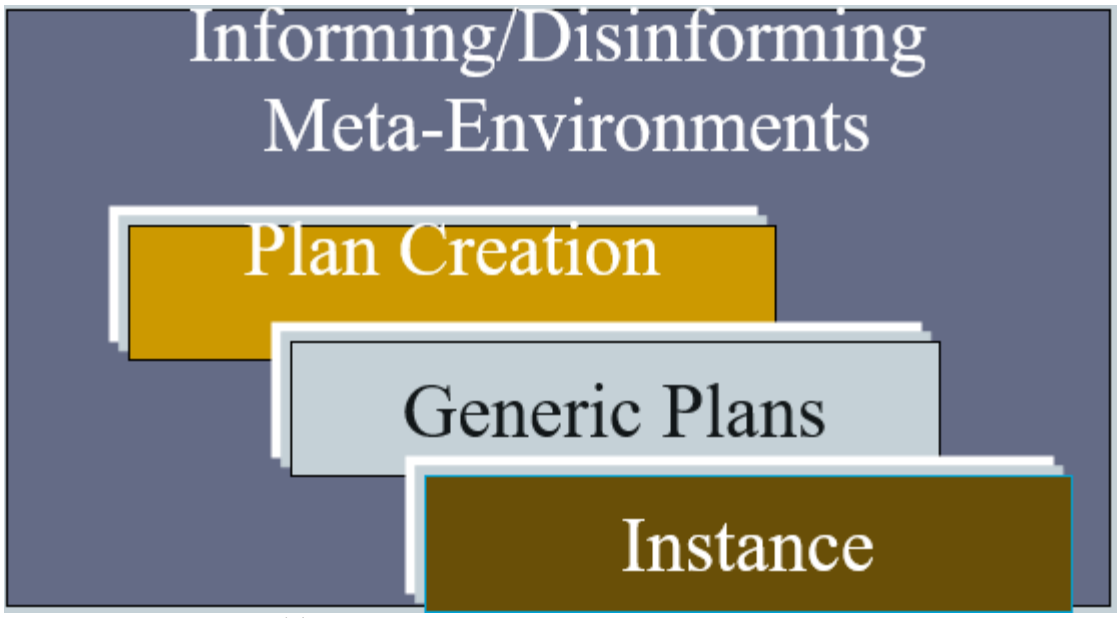

Figure 2. The three-level meta-model (Source: Cohen, 1998, 1999)

The papers in the series are arranged in order of abstraction as described by the first meta-model of informing science. At the highest level of abstraction is the plan creation environment, the theories and frameworks for all informing. At a level below that in abstraction are the generic plans for informing (regardless of content). An example of such generic plans are generic rules for how to get things done. The instance level is the least abstract and includes case studies of actual operations. The papers in this series on fake news are organized around this framework.

The highest level of abstraction in this meta-model is the plan creation environment. It incorporates study of philosophical issues, such as the nature of reality and truth, as well as models (frameworks) for exploring the informing/misinforming process. The generic plan environment includes techniques for informing, disinforming, and propaganda, for example. The instance meta-environment describes one specific disinformation operation.

The first two papers in this series deal with issues mostly at the plan creation level of abstraction: the environment of theories.

The initial paper (Cohen, 2019a) reviews issues involved in understanding fake news, starting with establishing terminology and exploring unresolved philosophical issues. It views some models proposed to deal with the complexity of informing and concludes by offering a refinement meant to deal with issues it raises involving bias, misinformation, disinformation, propaganda, and fake news.

The second paper, by Grandon Gill (2019), further examines fake news from the perspectives of informing science, particularly considering fitness landscape and client resonance concepts.

The third paper (Cohen, 2019b) in the series explores generic plans, in this case techniques and methods used to disinform and propaganda that are derived from such theories. It outlines techniques used in real life to disinform.

The final paper (Cohen & Boyd, 2019) examines a specific instance of such a plan to misinform and disinform. Specifically, it examines a concrete disinformation operation created in Moscow named Operation SIG.

A study of misinforming truly does require "a multidisciplinary effort" as noted in Lazer et al. (2018). Informing Science attempts to bring together the diverse research perspectives of all academic fields around the problem of how best to inform. This series is a first attempt to integrate diverse perspectives around attempts to disinform.

Taken together, the results brought forth across these papers is truly scary. Due to their biases, when presented with information, people can and do generate their own misinformation. People tend to communicate such misinformation that they self-generated with others in groups sharing their beliefs, strengthening the misinformation by some and silencing those do not share these thoughts. This process creates divisions in society. How can humanity seek wise decisions when we cannot agree even upon the facts. We see the results of this syndrome in Operation SIG and current divisions within politics in the West.

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