

Tipping Points and Rumors in Antivaccination Beliefs

The Tipping Point

The tipping point is an extended metaphor, created by writer Malcolm Gladwell (2002), that explains the unique moment when timing and context align and social trends abruptly become epidemics. Tipping points are an important concept in rumor spread and the eruption of the anti-vaccination movement. A tipping point occurs when a trend turns into a social epidemic in one swift, brisk movement. In *The Tipping Point: How Little Things Can Make a Big Difference*, author Malcolm Gladwell argues that trends resemble epidemics because they have three similar characteristics: (1) trends are a contagious behavior, (2) little changes in trends can have a huge effect, and (3) trends have a tipping point. These similarities allow trends to become social epidemics. The “stickiness” factor determines whether a trend or rumor will be contagious.

The idea that little changes have a big effect implies that humans are very sensitive to their contexts (Gladwell 2002). Rumor transmission is no exception to this claim. The context of a situation may determine whether negative rumors flourish more often than positive rumors. High anxiety situations encourage the passing along of initial warnings, despite their validity (Difonzo & Bordia 2007). Sometimes publicizing an issue, even in an attempt at education, can have the wrong effects. In the anti-smoking campaign of the late 20th and early 21st centuries, the more attention smoking got, even negative attention, the more teenagers were intrigued to try it. Education on the topic did not stop this trend (Gladwell 2002). This idea also prevails in rumor transmission. Findings support the notion that the more one hears a rumor (even if it is

false), the more likely one is to believe it is true, and the more likely one will believe it came from a credible source (Clark 2008). The relevance of a belief in a society will increase the amount of times it is transmitted. In this way, relevance and repetition of an idea increases its validity in a society and consequently alter the context via increasing public sensitivity and alertness to the belief.

What was the tipping point for the anti-vaccination movement? After all, vaccinations were not always viewed with such widespread skepticism, even if antivaccinationism is as old as vaccines themselves. One prominent theme in the literature is the fear that vaccines cause sudden infant death syndrome (SIDS) and autism. This concern arises from different vaccinations concerns that jointly tipped the social perception of vaccinations.

For example, at the same age that infants receive the DTP vaccine, they are also susceptible to Sudden Infant Death Syndrome (SIDS). The sudden, uncontrollable nature of SIDS causes much anxiety to new parents and so they look for an answer. Because of the age correlation, some people assume a relation between the DTP vaccine and SIDS (Jacobson, Targonski, & Poland 2007) and thus avoid the DTP vaccine for their children in an attempt to be safe rather than sorry. This correlation alone was not enough to cause a social epidemic; however, it was enough to heighten uncertainty and awareness in parents about vaccination. In the late 1990s, autism, another syndrome without a known cause, was seemingly increasing in the populations across the globe. Many parents were searching for causal connections when Andrew Wakefield published an article in *The Lancet* relating the onset of autism to the MMR vaccine. The uncertainty about the DTP vaccine mixed with this new and negative information about the MMR vaccine tipped the anti-vaccination movement. With lots of parents already

anxious about vaccines, Wakefield's article was just the point the people needed to dissuade them from vaccination for routine childhood diseases.

Thought Leaders

Tipping points require thought leaders to guide the social epidemic. Thought leaders are people who hold significant social ethos, especially in terms of transmitting ideas and opinions. Thought leaders have authority and they appeal to specific groups. In our research, we observed that thought leaders tend to emerge due to their message and the anxieties of the time. In particular, incurable medical conditions leave humans anxious for an explanation. Whoever can provide a socially plausible answer becomes the thought leader of the time. Although thought leaders produce the same general effect in idea transmission, they vary drastically in their modes of information transmission. Three prominent thought leaders our group discussed were Dr. Andrew Wakefield, Jenny McCarthy, and the former redskins cheerleader who developed Dystonia after the seasonal flu shot. Through research articles, public anti-vaccination campaigns, and reported vaccination defects, these three thought leaders, together, influenced multiple social and geographical communities through idea transmission.

Wakefield's (1998) research on vaccination and autism sparked an initiative against vaccination. He argued that the MMR vaccine could potentially lead to autism. During the time, autism rates were sky rocketing and no one knew why. This escalation of autism diagnoses scared parents; when a scientist provided an answer to their concerns, they listened and stuck by his assertion. Despite proof that his research was fraudulent, it still maintains social influence. As a physician, Wakefield commanded authority and was expected to be educated, scientific, and produce reliable results. This

classification automatically gave him ethos within the community of concerned parents, as did publishing his article in *The Lancet*, a prominent British medical journal. Given the anxiety surrounding the rise of autism, Dr. Wakefield's findings became an explanation terrified parents found reliable, if not calming.

Jenny McCarthy is another thought leader in the anti-vaccination movement. We were interested in her mode of communication, the ethos she held, and how she differed from Wakefield. Jenny McCarthy, a celebrity and mother, was not interested in the anti-vaccination movement until her son was diagnosed with autism in 2005 (McCarthy Message). From then on, she became an advocate for the "Green our Vaccines" campaign and president of Generation Rescue, which links current vaccines with the onset of autism. McCarthy's mode of communication is persuasive because she speaks from personal experience. She conveys her message through public rallies and Internet websites. Her message comes in a less formal mode than Wakefield's, yet she holds a great deal of ethos with other mothers concerned for their children's well being. Her personal experience gives her credibility with other mothers, who traditionally control decisions regarding the vaccination of their children. Wakefield is a thought leader because of his ethos as a physician and because his research reports linking autism to the MMR vaccine addressed a specific concern of parents at the time. Jenny McCarthy is a thought leader because of her celebrity status and because she took advantage of the opportunity of the Wakefield article to popularize the connection between MMR and autism.

The former Redskin cheerleader who developed a rare muscular syndrome (dystonia) after receiving a seasonal flu shot became a thought leader through experience as well. The ramifications of dystonia are shocking and scary to watch.

Dystonia is a movement disorder that causes the muscles to contract and spasm involuntarily, resulting in “twisting movements and awkward, irregular postures” (“What Is Dystonia”). The cheerleader exhibited these symptoms in various interviews. Via Youtube, her story went viral. She spoke about her disease through news stories. She presented herself as an average person who did not react well to the flu shot. This former cheerleader is a social thought leader in that she relies on social media to make her story known. By seeming to be an average, youthful woman who had a negative reaction to vaccination, she presents herself as credible in a warning to young, healthy people who would normally receive a flu vaccination.

Our research group hopes to be a different kind of thought leader than those listed above. We hope by being credible to both researchers and the general public that we can gain ethos within multiple communities. Wakefield, McCarthy, and the former Redskins cheerleader all had ethos with very specific, anxious, and susceptible groups. If we can gain respect and ethos from concerned parents, healthy individuals, and the scientific community we can demonstrate how vaccine controversies are framed in the United States, and elsewhere today. We hope to be able to aid patients, parents, and physicians by bridging the communication disconnect in our culture regarding vaccines.

Stickiness

Gladwell (2002) identifies the process of transmitting ideas and stories as rumor. Initially, a person with ethos in a community hypes an influential story and spreads it through different forms of social media. Then, the details that are of little significance are edited out of the story, and only relevant, and even exaggerated, information

prevails. Next, the story is simplified to become less convoluted and more concrete. This aids in quicker information processing and simpler interpretations of a stories conclusion. These steps (hyping a story, editing out details, and simplification) ensure that the rumor remains memorable and will flourish within a particular society or social group. For example, one could argue that this process occurred in Nigeria in 2005 during the World Health Organization's global polio eradication initiative (Chen 2004). During this initiative, United States citizens administered oral polio vaccines to citizens of Nigeria and India. However the Nigerian doctors and officials claimed the vaccines were to blame for the prevalence of infertility. In addition, doctors claimed the vaccines were also contaminated with HIV / AIDS and carcinogens. Nigerian leaders claimed the United States purposefully contaminated the vaccines in a government ploy to destroy their country. In these ways, the hyped, intensified, and changed story strongly influenced Nigerian citizens until vaccination efforts failed. These ideas were sticky because the anti-vaccination stories were relevant and interesting while the environment was vulnerable to infertility explanations. While the relevance of these stories was influential, the fear and anxiety present in Nigeria acted as a catalyst for rumor transmission.

According to Gladwell (2002), rumor stickiness and context sensitivity are the foundational pieces which, in the right amount, create the ideal scenario for a "tipping" to occur. The carefully balanced ideas and emotions of a society are incredibly sensitive to external factors. In general, humans tend to operate most comfortably when in control, or perceived control, of their surroundings. When disorder starts expanding uncontrollably society members, motivated by their anxiety, start desperately searching for answers. At this moment of both near panic and desperation the chances of a tipping

point are high. Then, once a person with ethos in the community provides an explanation, the perceived answer spreads rapidly signifying the aftermath of the tipping point. Jointly, sticky ideas and susceptible communities create an impressionable society, vulnerable to both tipping and social epidemics.

Rumor

The second definition of rumor according to Merriam-Webster is “a statement or report current without known authority for its truth.” This definition states that information is not the factor that determines a belief’s transmission, but rather how sticky the belief is to people in a specific context. If accurate knowledge is not the goal of rumor, then how does it function in society? There are a variety of theories describing how rumors work. Psychologically, rumor helps people deal with anxiety and fear by providing an explanation for the unknown. Sociologically, rumor acts as a unifier of communities and a preventative measure to ward off harm. These theories show how rumor is persuasive to particular audiences. In this paper, I investigate whether anti-vaccination beliefs can be understood to act like rumors. We are concerned with why rumors spread, what they say about a community, what makes rumors go viral, how trends against anti-vaccination behave like rumors, and how these rumor-like inclinations impact society. Taken together, theories of rumor explain some of the ways that anti-vaccination beliefs spread and are persuasive.

Psychological aspects play an important part in rumor transmission. In the article “Psychological Factors in Rumor Spread” (DiFonzo & Bordia 2007), the authors emphasize five factors: uncertainty, importance or outcome-relevant involvement, lack of control, anxiety, and belief. These five variables represent fundamental goals in social

cognition and behavior. In this theory, humans interact with the social world to accomplish one of three primary goals: 1) to act effectively 2) to build and maintain relationships and 3) to manage favorable self impressions. The authors conducted a study which found that people do not necessarily tell the truth to strangers. Instead, what is most important is that the story they tell is interesting and will give the story teller a positive social-image. This finding may account for the rumor transmission of information that is knowingly false; accuracy is not as important as public image. However, this finding was not the case for strong, meaningful relationships. In those types of interactions, negative information tended to be spread more often, a phenomenon linked to a natural, biological instinct of survival. In this way negative rumors that portray life-threatening information will be spread more frequently in order to preserve life. Although feasible, this interpretation seems to be quite a stretch. Rumor transmission seems mostly psychological, and although it is important in society, it is not a biological need or innate idea to be altruistic and to protect others, which the theory requires.

Taylor Clark (2008) argues, in the “8 ½ Laws of Rumor Spread,” that rumors spread due to a need to explain the unexplainable. Clark discusses some central themes in the reasons behind rumor transmission. Of most value to our research is the idea that when people are anxious, negative rumors prevail. Further research supports this claim, for example, demonstrating the transmission of rumor after a murder on a university campus. Rosnow, Esposito, and Gibney (1988) found the proportion of people who transmitted rumors related to the murder was twice as high on the campus that was directly threatened by this information, versus another university that was not threatened at all. In other words, the more relevant a story or event is to a community

the more times the event will be retold. This data demonstrates that anxiety and context strongly influence the circulation of rumor about a threatening topic.

Despite scientific evidence disputing Wakefield's (1998) argument that the MMR vaccine leads to autism, people were anxious about the rise of autism when his study was published in 1998, and thus the idea went viral. Another belief fostered by anxiety was that the DTP vaccination caused SIDS (Jacobson, Targonski, & Poland 2007).

Because there is no definitive cause of SIDS, new parents can be anxious, which makes them more susceptible to the influence of non-scientifically verified stories. It is important to note that Taylor Clark (2008) emphasizes the fact that people are more likely to stick with rumors that validate their existing biases. In this sense, Wakefield's (1998) argument served as an explanation to harmful outcomes that validated existing concerns about vaccination and facilitated distrust in doctors and other officials who recommend vaccines. A combination of vaccine skepticism and pre-existing fears of autism and SIDS, a lack of control over the syndromes, and rising rates of people affected by autism during the 1990's created a context in which research-linking vaccination to autism was persuasive. In both cases, research reports on SIDS and autism were the factors linking vaccination to forms of developmental delay that, metaphorically, tipped the scale.

References:

Chen, Cecilia. "Rebellion against the polio vaccine in Nigeria; implications for humanitarian policy." *African Health Sciences*. 4.3 (2004): 205-07. Print.

Clark, Taylor. "The 8 ½ Laws of Rumor Spread." *Psychology Today* 41.6 (2008): 80-89. *MasterFILE Premier*. EBSCO. Web. 4 Mar. 2011.

DiFonzo, Nicholas and Bordia, Prashant. "Psychological Factors in Rumor Spread." *Rumor psychology: Social and organizational approaches* (2007): 69-87. Washington, DC, US: American Psychological Association, Web. 4 Mar. 2011.

Gladwell, Malcolm. The Tipping Point: How Little Things Can Make a Big Difference. New York: Little, Brown and Company, 2002.

Jacobson, R. M., Targonski, P. V., and Poland, G. A.. "A taxonomy of reasoning flaws in the anti-vaccine movement." *Vaccine*. 25. (2007): 3146-52. Print.

Kaler, Amy. "Health Interventions and the persistence of rumour: The circulation of sterility stories in African public health campaigns." *Social Science & Medicine*. 68. (2009): 1711-19. Print.

Wakefield, Andrew. "RETRACTED: Ileal-lymphoid-nodular Hyperplasia, Non-specific Colitis, and Pervasive Developmental Disorder in Children". *The Lancet* 351.9103 (1998): 637-641. Print.

What is Dystonia." Dystonia Medical Research Foundation. Web. 4 May 2011.
http://www.dystonia-foundation.org/pages/what_is_dystonia_/26.php.