Document generated on 04/23/2024 12:11 p.m.

The Canadian Journal of Information and Library Science
La Revue canadienne des sciences de l'information et de bibliothéconomie

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Que disent-ils? Une analyse de discours d'un débat portant sur l'information sur la vaccination sur Facebook

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Volume 44, Number 1, 2021

URI: https://id.erudit.org/iderudit/1078155ar
DOI: https://doi.org/10.5206/cjilsrcsib.v44i1.13342

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Publisher(s)

Canadian Association for Information Science - Association canadienne des sciences de l'information

ISSN

1195-096X (print)
1920-7239 (digital)

Explore this journal

Cite this article

Bonnici, L. & Ma, J. (2021). What are they saying? A speech act analysis of a vaccination information debate on Facebook. *The Canadian Journal of Information and Library Science / La Revue canadienne des sciences de l'information et de bibliothéconomie*, *44*(1), 19–37. https://doi.org/10.5206/cjilsrcsib.v44i1.13342

Article abstract

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Abstract: The global resurgence of vaccine preventable diseases is garnering attention amid the COVID-19 pandemic. Vaccination information debates in a Facebook group give participants access to second-hand knowledge conveying personal experiences. Through the lens of Speech Act Theory, this study analysed discourses on pro-and anti-vaccination perspectives along with views from vaccine hesitant groups. Analysis reveals significant criticism of behaviour around information. Findings indicate provision of substantiating information would play a crucial role in debate within divergent information contexts. Application of Speech Act Theory serves to inform participant communication more intimately and empowers their engagement in polarized discussion.

Keywords: Speech act theory, COVID-19 pandemic, anti-vaccination participants, pro-vaccination participants, information behaviour

Résumé : La résurgence mondiale des maladies évitables par la vaccination attire beaucoup d'attention au cœur de la pandémie de la COVID-19. Les débats sur la vaccination dans un groupe Facebook permettent aux participants d'obtenir de l'information de seconde main véhiculant des expériences personnelles. À travers le prisme de la théorie des actes de langage, cette étude a analysé les discours sur les perspectives pro- et anti-vaccination ainsi que les points de vue de groupes hésitants à la vaccination. L'analyse révèle une critique importante des comportements informationnels. Les résultats indiquent que l'usage d'informations justificatives jouerait un rôle crucial dans des contextes informationnels divergents. L'application de la théorie des actes de langage sert à comprendre plus intimement les pratiques informationnelles des participants et renforce leur engagement dans une discussion polarisée.

Mots clés : théorie des actes de langage, pandémie de la COVID-19, participants anti-vaccination, participants pro-vaccination, comportement informationnel

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La Revue canadienne des sciences de l'information et de biblothéconomie, Vol. 44 (2021), No. 1
https://doi.org/10.5206/cjilsrcsib.v44i1.13342

Introduction

Vaccine preventable diseases are on the rise in part because of worldwide disruption of vaccine delivery, especially due to the COVID-19 pandemic. Diphtheria, cholera, and poliovirus are re-emerging in several countries. Measles is reported to be "flaring around the globe" because vaccine campaigns have been suspended (Hoffman and Maclean 2020). Prior to complications of pandemics, vaccination schedules, human opinion, experience, and concerns long served as challenging points.

Because vaccine hesitancy prevailed over 90 percent of countries, public opinion was cited as a major factor for hesitancy (Lane et al. 2018, 3861). Heated debate in online social media (OSM) has gained in popularity, including the topic of vaccination, attracting people to join and defend their opinions. Discussion is peppered with information, be it verified, opinion, misinformation, or disinformation infusing an "undercurrent of urgency" (Blair 1990, viii) in information seeking.

This study examined a Facebook group, self-proclaimed as a "Social Learning Group", which aims to facilitate both pro- and anti-vaccination perspectives along with views from vaccine-hesitant groups. Lending an ear to both sides of the issue is a reasonable strategy for individual decision-making around vaccination (The Measles & Rubella Initiative, n.d.). In OSM, language serves as performance, with potential to persuade in divided conversation. Speech Act Theory (SAT) provides a lens to illuminate the degree to which utterances are said to perform locutionary, illocutionary, and/or perlocutionary acts. Speech acts intend to establish position, seek additional input, or convince. SAT informed a central research question framing the study: How do speech acts inform understanding of information debates in a divided social media forum?

Literature Review

Theoretical framework: Speech Act Theory (SAT)

A speech act, in philosophy of language and linguistics, is something expressed that not only presents content, but performs an action as well (Austin [1962] 1975). Wittgenstein's focus on how language is used in conversation served as a precursor to SAT. This perspective considered language as a vehicle for social activity. Austin's ([1962] 1975) SAT has been highly used by philosophers across disciplines.

SAT promotes speech as the thread in the fabric of communication; it not only conveys content, but it also entails actions, which Austin ([1962] 1975) referred to as "performative utterances" (233). Acts include speaking, what the speaker does in making the statement (a request or promise), and the intention of the speaker in making a statement (influence) (Ingber et al. 1982). Performative utterances were later defined by Austin as locutionary, illocutionary, and perlocutionary acts (Austin [1962] 1975).

Locutionary acts consist mainly of declarative statements. Such utterances seek neither a response, nor to convince or sway perspective. They establish the speaker's perspective, whereas illocutionary acts predominantly manifest by probing the conversation more deeply. Illocutionary acts seek a response to clarify conversation.

Meanwhile, perlocutionary acts are the emotional hotbed of conversation. Utterances probe response or debate on a divided issue.

Considering speech acts as social activity, SAT serves as a theoretical lens to study vaccine debate in OSM. A Facebook group that brings together anti-vaccination participants (AVP) and pro-vaccination participants (PVP) serves as data context. Group members yet undecided seek to inform their decision on whether to vaccinate or not. SAT provides a lens to better understand the use of language and social interaction as a source of informing.

Compared to conversational and discourse analysis commonly applied in social media research, SAT provides a critical framework for information debate contexts. For forum members who sit between, in a valley of dividedness, discussion serves to inform which side of the debate they adopt. Examining the potential for language to persuade provides insight on how conversations inform everyday life decisions.

SAT and Library and Information Science

SAT has been adopted in Library and Information Science (LIS) studies and practice. Budd (2013) examined the theoretical construct of information domain and proposed quantum aspects of information as a communicative, meaningful, human action (567–568). The purpose of (re)conceptualizing information studies is placed in ontological categorization of speech in the light of Austin's notion of speech as the communicative actions undertaken by humans for all uses (Budd 2013).

To understand how language is used in reference interviews, Dewdney and Michell (1997) applied SAT alongside philosophy, cognitive science, communications, and principles of linguistics to discover that asking "why" questions may yield undesirable results for the librarian and the information seeker. Findings indicated that paralinguistic cues from the librarian and the illocutionary force of an utterance may be misinterpreted by the user. If the illocutionary force of an utterance is misinterpreted, library users tend to provide an uncooperative response in that "why" has many ambiguities and connotations associated with its use.

Understanding would be beneficial to reference librarians in the reference interview process. In exploring the roles of archive records in social engagement, Monteith (2010) employed SAT as a theoretical framework to examine how archives and records perform communicative acts and how an utterance is interpreted by the receiver. Without contextual information on which speech acts depend, speech acts would have an illocutionary force that may not be understood. Contextual information about records and institutional rules of speech acts, along with an archivist's interests in participants, informed that archival research only focusing on the locution of speech acts would not represent that a record could speak for itself (Monteith 2010). In a slightly different approach and philosophical discussion, Yeo (2010) argued that there is representation in written form which determines "force and content" provided that there is an intention to communicate.

However, an utterance in written form remains after the communicative intention is gone. Yeo (2010) concluded that archives and records are representations of actions performed and a testament to performative utterances, not necessarily as factual or

locutionary acts. In a museum study, Laursen et al. (2017) incorporated SAT and conversational analysis to examine how Danish museums engaged with users for a period of eight weeks. Among the six emerged speech acts—directive, assertive, expressive, quotation, declarative, and commissive—it was found that the most common speech acts were directive, assertive, and expressive. Given that museums' interactions with users were largely neglected except for the assertive, incorporating SAT and communicative practices to museum interactions would better serve similar institutions.

Method

Data collection

Data were scraped from a Facebook group where both AVP and PVP share thoughts, opinions, perspectives and information resources surrounding vaccines and vaccine-related issues. With approximately 1700 members, discussion ebbs and flows, appearing to correlate with news of reported vaccine-preventable disease outbreaks.

This study analysed discussion around a vaccine-preventable disease in order to establish a baseline perspective on vaccine debate. Two search queries, measles and measles outbreaks, identified the highest peak of worldwide popularity in 2019 via Google Trends. The most recent search results on outbreaks and vaccinations occurred April 30–May 4, 2019. Considering past efforts but concentrating on the most recent measles outbreak establishes a foundation for understanding information debates in a divided social media forum. Data, identified by Google Trends, revealed spirited discussion around the measles vaccine in the Facebook forum. Posts during this period indicate general discussion around vaccine issues as well as specific discussions around "pockets of measles." One post reads: "The whole area (Quebec) can have a high vaccine rate, but pockets of lower vaccination can cause outbreaks. It's happening now in New York. The outbreaks aren't spread out over the city, they are low vaccination rate pockets."

As shown in Table 1, 661 posts were captured over a five-day discussion period. The first day, April 30, 2019, was the most active with 330 posts. Interactions declined over the five-day period.

Date	Number of Posts	Analyzable Posts
April 30	330	292
May 1	198	178
May 2	60	55
May 3	23	18
May 4	50	48
Total	661	591

Table 1: Numbers of group posts collected by date

Basic tenets of OSM research ethics consider respect for persons, justice, and beneficence. In that Facebook group postings are a secondary source of data collecting/scraping, this study qualifies for exemption from IRB review by the authors' institutions. To further protect group participants' privacy and confidentiality, all personally identifiable information was deliberately deleted from referred and quoted content.

Description of group participants

Established in December 2018, the Facebook group has conversed around the nature of vaccines in general and has also engaged in heated debate around concurrent vaccine preventable outbreaks and newly emerging diseases. Forum rules emphasize common sense, respectful debate, burden of proof, continuity and contribution, intolerance for biased media, and individual privacy. Posts are generally of a civil tone, aside from the occasional flare of divided opinions. In such instances, group administrators redirected conversation back to the topic of vaccine.

Data analysis

No administrator comments addressed vaccine-related content. Thus, administrator posts were excluded from analysis. Posts containing only a photo or an image, such as screenshots and memes, were removed from the data set as they are devoid of textual information. Information sources were excluded as they do not represent participant voice within conversation. Posts not determinable as to which side of the issue they represent were excluded from analysis. After parsing these posts, 591 posts were analysed using the SAT framework. Lending perspective on how speech acts inform debate in the polarized Facebook group, SAT frames the analysis and divides the group conversations into three types of speech acts: (1) locutionary, (2) illocutionary, and (3) perlocutionary.

A codebook was developed based on SAT's speech acts to analyse group discussion. Individual posts served as the unit of analysis, categorized by participant stance toward vaccination as: (1) pro-, or (2) anti- vaccine. Coding commenced with Austin's ([1962] 1975) definitions of locutionary, illocutionary, and perlocutionary acts (Table 2). Open coding of a random sample of posts provided context for developing a shared understanding of performance utterances within the forum.

Inter-rater reliability

To reach a higher coding agreement, inter-rater reliability was conducted using a pronged approach. Two researchers coded 175 randomly selected posts outside of the data set. Working with an independent coder, an additional twenty posts were coded. Inter-rater reliability was sound in both cases with an agreement of 88 percent and 81 percent respectively. A Cohen's Kappa was calculated for the 175 coded posts with a result of 0.69, indicating moderate yet acceptable agreement.

Results

Frequency of speech acts

The study data set revealed that the majority of participants demonstrated either AVP or PVP stance. As shown in Figure 1, AVP dominated the conversation with nearly 60 percent of posts representing their engagement. PVP represented 35 percent of the conversation. Participants holding an unidentifiable stance made up 5 percent of the conversation contributions. This study posits that unidentifiable participants join the forum seeking to form personal perspective on vaccine.

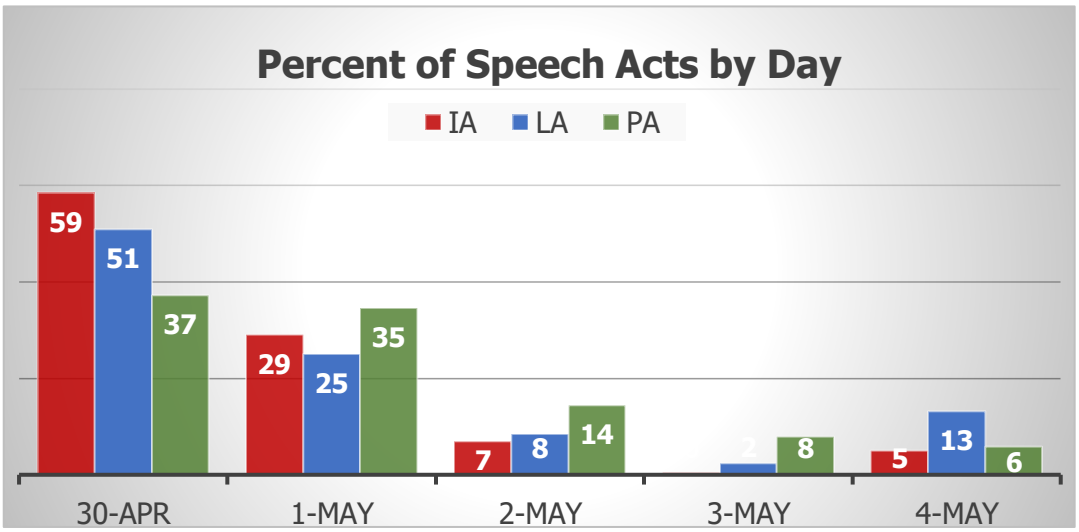

Figure 1: Percent of speech acts by day

All speech acts are evident in the discussion with speech act occurrences as demonstrated in Figure 2:

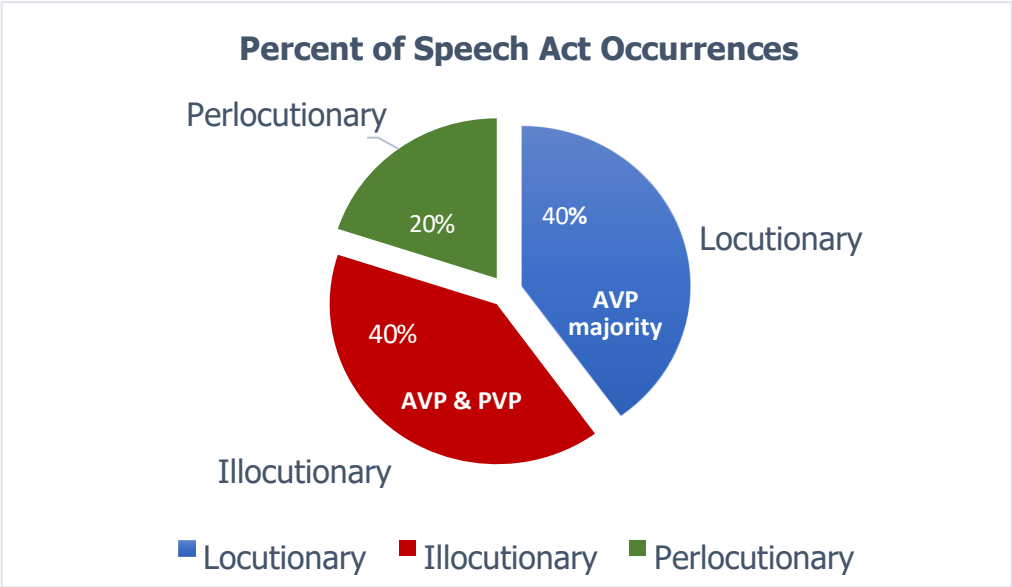

Figure 2: Percent of speech act occurrences

AVP and PVP commit all three speech acts in the course of discussion over the five-day period. Undecided vaccine participants (UVP) statements are limited to illocutionary acts, indicating seeking additional input from the forum. Again, we surmise that UVP have yet to formulate a perspective on the vaccine debate. Thus, they have no argument to present, rather up-taking and evaluating arguments from both sides of the vaccine debate.

Locutionary acts

Locutionary acts are declarative statements carrying no intention to persuade or provoke response. Locutionary acts constitute nearly half of the conversation and are committed by members on both sides of the vaccine debate. These speech acts differ between AVP and PVP forum members. AVP locutionary acts tend to be introspective, conveying their beliefs and experiences about vaccines. PVP locutionary acts, on the other hand, indicate both inwardly and outwardly directed conversational acts. Differing themes emerged for both member perspectives as seen in Table 2.

Anti-vaccine	Pro-vaccine
Conversational hiatus	Meta-discussion
Declaration of staid perspective	Unsubstantiated information
Call for research on vaccine injury	

Table 2: Locutionary act themes

Conversational hiatus

For AVP, some locutionary acts express content devoid of vaccine perspective. The following are cited as examples indicating need for a break from discussion: "Time for some [coffee cup image]"; "I'd love to stay and chat but I don't have coffee filters): and my morning has been quite long, Pray for me lol"; "I'm interested in responding to more of this thread. I'll be back."

Declaration of staid perspective

Other comments by AVP are declarative indicating commitment to their antivaccination perspective: "Ha, I don't care if they put fairy dust in their poison, there is a risk of danger, and for that reason I'm out."

Some AVP comments are qualified with first-hand, personal experiences, and occasional second-hand experiences. Several posts express that AVPs were formerly pro-vaccination but shifted stance based on their experiences. Such experiences are shared, with the intent to "inform" or "educate" those joining the forum to seek clarity on the vaccine debate. Two comments read: "Well, vaccine refusal grows, and most of us did vaccinate. Not doing it again", "My good friend's baby died of 'SIDS [sudden infant death syndrome]', within a day of vaccines, and she can't even join groups like this…because they swarm and attack her."

Call for research on vaccine injury

Forum rules call for evidence-based discussion. While some statements are backed by personal experiences, others refer to undocumented knowledge to inform

argument against vaccines. At the crux of personal experience and undocumented knowledge lies a call from the AVP a need for research based on their claims of vaccine injury. Thus they are seeking evidence-based research to bolster their argument.

> The study concluded a need for further/more thorough examination…and it hasn't happened…there's been no thorough/peer reviewed/scientific study, proving the safety of aluminum injected intramuscularly…As far as I'm concerned, it's a major problem.

> Not to mention, I was told the vaccine schedule was totally safe and effective, I wasn't given manufacturer's inserts, and that's it…I wasn't offered informed consent. As the vast majority of us are not, because the industry is not being honest…

Meta-discussion

While AVP locutionary acts are inwardly directed, PVP locutionary acts embody criticism of AVP information behaviour. These locutionary acts are expressed in innocuous as well as inflammatory tone. Innocuous, locutionary acts are typically inwardly directed, explaining one's own participatory behaviour. Two examples are: "It's not 'me' that's unhappy with that study you shared it's people who peer reviewed it and reported it."; "A few things 1) I don't 'believe', I accept facts…"

These meta-conversation comments can turn to locutionary acts that are inflammatory in nature. Outwardly-directed statements criticize AVP information behaviour: "That's how debate works. A person makes a claim. Another person refutes the claim. The person who made the original claim provides proof to back up said claim. Only then would debunking it come into play"; "UNCLE! I give up. Waste of time. You're too far gone. There is no possible evidence that will ever change your opinion. Done. Outta here. Over and out."

Unsubstantiated information

While meta-discussion focuses on information behaviour, locutionary acts presenting as factual statements were frequently noted among PVP posts. Since forum discussion description indicates it is evidence-based in nature, we note that these locutionary acts include alleged facts since they are unsubstantiated by information resources or experience. Exemplary PVP posts include: "That's actually only true if vaccines were injected directly into the bloodstream. Intramuscular or subcutaneous injections take the same 'detox' pathways as food"; "Placebo studies include pertussis vaccine, HPV vaccine, polio vaccine, Hep B vaccine, pneumococcal vaccine, and flu vaccines. There is a current one for Ebola (and is quite controversial because its not ethical to perform placebo studies on some vaccines)."

Reliance on personal accounts of vaccine injury by AVP and the recapitulation of published vaccine research without provision or reference to specific resources by the PVP leads to requests for substantiating evidence by both sides of the debate, as seen in the ensuing section on illocutionary acts.

Illocutionary acts

Illocutionary speech acts produce an utterance, suggesting warning, promising, or requesting with intent to elicit a response. One post reads: "I have to take care of

my special needs child, but that stands: Anyone, anywhere, who can disprove what I've said, is strongly invited to debunk it themselves…Trust me, I would love for it not to be true, but…I'm living the lies here." The speaker has no intention to persuade others to adopt their beliefs or perspective. Rather, these acts form the core of interactive discussion that seek to more deeply understand perspective of participants around vaccine. Table 3 outlines such different themes emerged for both member stances:

Anti-vaccine	Pro-vaccine
Clarification/substantiation of information questioning of authority	Meta-discussion
Meta-discussion	Information behaviour

Table 3: Illocutionary act themes

Clarification/substantiation of information questioning of authority

The most frequent forms of illocutionary acts seek clarification of comments and substantiation of knowledge shared by PVP. Examples of seeking clarification indicate wanting explanations from the original poster, in this case PVP, of the comment. One PVP illocutionary act identified is "Are you saying your pie graph is accurate? Excuse me, pie chart." While another is "How did he prove the ingredients are safe to inject?"

The above seek granular aspects from the poster's knowledge, while other illocutionary acts seek formal resources to back arguments. Examples of requesting substantiation typically call for evidence-based data such as research reports or publications as evidenced in the following posts: "So show me the study on aluminum, injected intramuscularly, that provides it's safe, if you're unhappy with that one"; and "Oh really? Well please provide the studies where vaccines have been tested using placebos!"

Meta-discussion

Illocutionary acts expressed by AVP took the form of meta-discussions. These acts criticize or diminish the manner in which PVP formulate their contributions to discussion. Statements include requests for or commitments to provide substantiating information. One representative statement is "Adding more emotion into responses than necessary"… "OK, so…1: I didn't realize Emotion Policing existed. 2: Who are the judges exactly? And 3: Are they people who's children were 'fine' after vaccines? Cuz that would explain a lot;" Another post reads "Required according to who? I will squeeze it in as soon as possible, if this is a group mandate. Otherwise. You're welcome to debunk anything you claim is false", which indicates requested information is forthcoming, yet is buried in references to forum discussion rules. Another example of avoiding provision of substantiating information hiding behind meta-discussion is "Not my responsibility to debunk. Your responsibility to prove. Citations, please."

In that locutionary acts do not seek a response, their tone is rhetorical. One example of an unsolicited reaction is "Your 'more ethical' approach suggestion is"; "Wing it, inject every baby born, without the studies, and without their knowledge of experimental status, and see what happens? That's ethical to you?" Another is "How do you think vaccines are approved? Post market studies… Our kids are just guinea pigs!" Similar in nature to AVP illocutionary acts, such acts committed by PVP manifest as

meta-discussions criticizing AVP information behaviours. Statements focus on human behaviour as opposed to the information provided. Criticism of participant behaviour around information is presented in this example: "Have to say guys, XXX is right here. You were presented with facts, which you immediately dismissed because of 'beliefs' as far as can be seen."

The following example of criticizing information behaviour pushes the limits of civility, serving to reduce credibility of the AVP participant:

> Oh, and the vaccine manufacturers are indeed liable. In fact, not only can they be sued, but VICP [The National Vaccine Injury Compensation Programmeme] can also file for restitution for payouts made. You really should do actual research and not just make shit up.

Information behaviour

Meta-discussions are critical of ways participants behave around information, other illocutionary acts focus specifically on information, be it lacking in quality, authority, or other aspect indicating lack of evidence-based. Examples of attacks on the quality of information are "Ah, okay. So state what vaccine manufacturer's state, and how you're protecting your son by exposing him unnecessarily to vaccine preventable diseases. With actual, unbiased sources, not Natural News, Mercola, or blogs, or cherrypicked screenshots, or memes"; "She made no points, because she can't prove any of them. Citations, please."

Similar to AVP seeking evidence to back opposing arguments, PVP do likewise as evidenced in these examples:

> Just figured since you had a very specific stat you'd have something to back that up? See I don't have a medical degree. But I've been to school and am in school for field CJ. Part of course training is reading Toxicology reports…

> What are you talking about. Do you honestly believe that vaccines carry more risk than the measles? In either death or serious side effects? Where on earth are you getting your figures for vaccine deaths? Measles deaths? One? What in the world or any particular country? BTW a birth certificate can show a secondary and primary cause of death. Pneumonia is a common cause of death because it's a common complication in many diseases. It's especially common in serious measles cases.

In this forum, illocutionary acts typically seek further information from the opposing group. Therefore, it represents the primary interaction between both sides of the vaccine debate. Dialog involves heated banter not necessarily over vaccine issues, but rather about information behaviour. This begs one to wonder why, in a bifurcated forum, does the predominant speech act not attempt to sway participants to one side from the other, as witnessed through perlocutionary acts.

Perlocutionary acts

Perlocutionary acts, intended or unintended, produce a causal effect on the listener. Persuading, convincing, insulting, frightening, amusing, these speech acts

provoke the listener to act (or react). Intent is on listener to argue or change their perspective (Table 4).

Anti-vaccine	Pro-vaccine
Lack of rigor/ethics in vaccine research	Debunking AV argument
Victimization	Redirecting by criticizing information behaviour
Disease preferable to vaccine injury	

Table 4: Perlocutionary act themes

Within this forum, perlocutionary speech acts are notably lengthier and infused with emotion, more so than locutionary or illocutionary acts. AVP perlocutionary acts manifest in three distinct patterns: (1) lack of rigor/ethics in vaccine research, (2) victimization, and (3) disease preferable to vaccine injury.

Lack of rigor/ethics in vaccine research

AVP devote much of their convincing argument expressing faulty vaccine research. More than half of the perlocutionary acts committed by AVP present this argument throughout the data. Representative examples include

> They said mercury was safe too….proved it wasn't, changed the name (Thimerisol- 49% Mercury), and kept using it in a few variations of the flu vaccine….. All while telling people "Mercury is no longer in vaccines!"… Because of the "less than 50% loophole… Don't have to call it what it is, if it's less than 50% (never mind that the other 51% of the Thimerisol is a benign substance).

> The ones in charge of studying and ensuring the safety of the vaccines in the US, as explicitly outlined to them, did not do even a single study…not one….It's not even that they didn't do it at all, or didn't meet the standards outlined, it's that they literally never did ANY of it…. EVER.

Victimization

AVP perlocutionary acts indicate that those posting had fallen victim to vaccines. Unlike personal accounts detailing vaccine witnessed in locutionary acts, perlocutionary acts make general statements about vaccine injury. Two examples provide accounts of personal injuries while then translating these to the general impacts of vaccine:

> The MMR/DTAP set (at 18 months in the US) is where it all went wrong for us….. Looking back prior though, and learning the nature of vaccine/immune system injury, there were signs among the prior vaccines that could have warned us, had we known…

> My own child was irreparably injured by the MMR vaccine and/or DTAP (we will prolyl never know which did more or less harm because they were given at once, but – MMR induced Measles was the least of the problems from that vaccine)…

Yet another example sums up victimization generalized to the AVP population,

> Anti vaxxers have nothing to gain, by their position. They're hated, attacked, blamed, and have only experienced loss in most cases… Most people anywhere near the medical industry, will tell you themselves…

Disease preferable to vaccine injury

Closely associated with feelings of victimization, several perlocutionary acts claim that contracting and suffering from measles (a vaccine preventable disease) is preferable to side effects of vaccine. These examples demonstrate that AVP prefer natural chance over created infliction.

> I'd take the Measles any day, over chronic ear, respiratory, add throat infections, asthma, eczema, allergies, significant hearing loss from 2 ear drum ruptures (of which both occurred within 48 hours of vaccines), eating disorders, Aspergers, ADHD, OD…

> There's also irony in the fact that my daughter has never had vaccines, or a vaccine preventable disease, but my fully vaxxed (until 5 – those were his last) son has had 2 ….. The Measles, post Measles vaxx (the 18 month vaccines wrecked him….

Debunking AV argument

Given that perlocutionary acts are intended to convince or persuade others to change their views, it should be of no surprise that the nature of comments made by PVP differ from those mentioned for AVP. Perlocutionary acts by PVP are generally reactionary to AVP perlocutionary acts presenting the AVP argument. Three themes emerged from the data for PVP posts. (1) Debunking AV argument, (2) Redirecting AV victimization by criticizing AV information behaviour, and (3) criticizing AV ability to grasp PV perspective.

Debate often involves attempts to discredit or debunk the argument made by the opposition and were evident in the data for this study. Examples of perlocutionary comments made by PVP attempting to debunk are:

> I do trust scientists who do all of the work to get to these manufacturers. Scientists don't sit in a lab thinking "Hm, how can we fuck shit up this year? Just because one child out of millions gets a vaccine injury, doesn't mean the world has to stop and rethink. You're doing more harm than good for the entire world. Stop being so selfish" and "90% of US measles cases don't go to the hospital." Wrong. This year, 2019 (so far) is 10%. It was 20% for the Disneyland outbreak and 30% for the Minnesota outbreak. This is NOT abenign disease. At all.

> "Wow, you went conspiracy theory in a hurry. Any deaths are too many, such as the 110,000 people that died from measles in 2017 alone globally, most of them being children under five. The problem is that none of these deaths have been causally linked to the vaccines."

Redirecting by criticizing information behaviour

Debunking attempts also hint at criticism of AVP information behaviour. The second theme addresses PVP perlocutionary comments that criticize AVP information behaviour in response to AVP claims of victimization. The following are two exemplary statements:

> I don't think anything about your parental decisions. I don't know you. I based my comment on the fact that XXX provided detailed and properly cited information to you and you still said, "Well thank you, I'm glad your info is correct, but I'm still going to base my decision on opinions and ignore presented facts." Nothing more

> That may be your belief XXX, but evidence demonstrates your belief to be wrong and shows that your children are better of being vaccinated despite your concerns. If you're in a discussion group, what's the point in refusing to discuss?

With distinct difference of perspective on vaccine debate, data demonstrate that perlocutionary acts by PVP accuse AVP of failing to grasp PVP perspectives. These acts portray PVP belief as the only accurate view on vaccine. The first example is directed at the general AVP:

> This is something I find anti vaxers completely unable to grasp so let's make a super simple example of why claiming that aluminum is is vaccines (in its elemental form) is wrong. So water is a compound made from hydrogen & oxygen. Hydrogen is toxic to humans, yet we can drink it safely in water….

The second example is directed at a specific AVP in the forum:

> yeah my interest is my child's safety that includes being around who aren't not vaccinate against preventable disease there is no point in continue this because you're only leg you got to stand on is money, no scientific backing whatsoever so until you have medical evidence proving otherwise we can talk until then….

Perlocutionary acts, in theory, should embody the essence of the argument in a divided discussion forum. Persuading and convincing in nature, intent is to affect the listener or message target to change their view. In this forum, perlocutionary acts tend to be emotionally charged by both AVP and PVP members. Similar to locutionary acts, where stances are declared but interaction is around information, perlocutionary acts in this forum turn their energies back on the topic at hand. Posts carry more information, both formal and informal, accounting for their verbosity.

In summary, data demonstrate that all three speech acts occur in this vaccine debate forum. Locutionary acts account for approximately half of the conversation throughout the analysis period. These statements represent the perspective of participants as it relates to vaccine debate. Participants make declarative statements, typically unsubstantiated by supporting resources. Meanwhile, illocutionary acts express as information-seeking in nature. Participants on both sides of the vaccine debate seek substantiating information to enforce or debunk perspective expressed through locutionary acts. Perlocutionary acts replicate stance on an issue as evidenced by declarative locutionary statements. However, perlocutionary acts are emotionally

charged and lengthy serving to vent frustration (AVP) or put another participant on the defensive (PVP).

Discussion

How do speech acts inform understanding of information debates in a divided social media forum? SAT applied in a divided forum probed the role of speech as it relates to information behaviour. Three findings emerged from the data: self-shielding behaviour, information-less behaviour, and information behaviour as noise. Findings are discussed below.

Self-shielding behaviour

In a divided forum, we anticipated that perlocutionary acts would constitute a significant part of the vaccine debate. Yet, perlocutionary acts occurred at only half the rate of both illocutionary and locutionary acts. This indicates that forum members stake their side of the vaccine debate through locutionary acts, rather than to attempt to convince the opposition through perlocutionary acts. Locutionary acts declare the side of the debate the participant embraces. Accompanying the position statements were locutionary acts attempting to curb an argumentative response. These statements served as an attempt to shield from an argumentative or accusatory response. Indicators include posts that embody conditional statements that express hypothetical events. These are then followed by what the speaker's response would be. One such example is "If anyone were to say that I'm uneducated or ignorant or I've got a googledegree because of that, I can live with that opinion." Although nobody has yet said it, the speaker predicts they might. The speaker indicates acceptance to predictively deflect these comments as an attempt to defuse criticism by the opposition. Although labeled a locutionary act in that it did not seek a response, these self-shielding statements embody more than just an act that does not seek retort. They attempt to bar a reply. None of the three speech acts describes barring or deflecting anticipatory response in discussion activities. Further research examining self-protective speech act behaviours could identify a new speech act as a result of speech metamorphosis based on a world characterized by significant divisiveness.

Information-less behaviour

Although evidence-based information is not completely lacking in this forum, the data demonstrate that the majority of posts lack references to substantiating information resources. Information-less statements relegate participants to inquire (illocution) as to the source of knowledge or proof of support. Requests frequently resulted in comments and accusations about information behaviour as presented in this speech act "That's how debate works. A person makes a claim. Another person refutes the claim. The person who made the original claim provides proof to back up said claim. Only then would debunking it come into play."

UVP come to the forum seeking knowledge on the vaccine debate through performance of illocutionary acts demonstrating their information-seeking efforts. These

acts call attention that AVP and PVP speech acts are frequently devoid of information. Questions seek both evidence-based information and experiential accounts. Posts seek to discover cognitive authority, meaning what someone's personal experience may be. For instance, several posts inquired about the ability to contract measles if one has already received the MMR vaccine. More specific questions probed permanent effects of the measles, for example blindness. When information such as a link or image was provided, questions probed the source of that content more deeply.

Employing SAT piqued our curiosity as to whether perlocutionary acts result in convincing arguments that sway the perspective of participants from one side of the vaccine debate to the other. We did not find evidence of a change of heart by a member on their expressed vaccine stance. An over-arching finding from the data is that argument serves to inform rather than persuade. We see this played out in the rare conversational engagements by participants who were undecided on the vaccine debate in this forum. UVP members came to the conversation looking to get educated or become informed on the safety and efficacy of vaccines. The locutionary acts of these members support this notion and further indicate that forum discussion serves to inform their lack of knowledge.

Comments come in the form of meta-discussion, confirmation, and gratitude. These posts do not address vaccine. Rather they provide qualitative statements about the discussion in general. Instances point to informative discussion. The UVP express appreciation for minimal distraction from the topic. A specific example involves a contributor from the UK indicating that cases of measles are rare in the UK. Procuring the experiences around measles of those in the U.S. is helpful in knowledge building.

Information behaviour as noise

Second-hand knowledge highlights the value of experience as a source of information. Wilson's (1983) theory of cognitive authority centres on the fundamental concept that people employ two manners in the construction of knowledge: first-hand knowledge (personal experience) or second-hand knowledge (experiences of others). Personal experience is garnered from interpretations of real-world encounters. The experiences of others, shared orally or in documents, are outside the range of direct experience. Wilson (1983) posited that much of what people believe or think, beyond the narrow confines of their own experiences, is informed by second-hand knowledge. In this forum, AVP share experiences around vaccine injury affording to educate the UVP on supposed events devoid in the vaccine literature. Stories are shared with intention to inform UVP in the hopes they will embrace a given perspective, or the opposition will recognize the flip side of the argument. Experiences incite causal relationships between vaccine and injury, pointing out that most AVP were formerly PVP. However, based on perceived vaccine injury experiences stance has shifted to AVP and desire to share their experiences via this forum.

> Hell hath no fury, like that of a Mother who's baby was injured by the Pharm…… I will spend the rest of my natural born life, sharing our experience, science, ingredients lists, etc with other concerned/good parents…… I don't care how much money it costs the medical industry/Big Pharma. I hope, every penny.

Shared experiences are a call to others to recognize the need for research on AVP vaccine injury claims. Or perhaps an AVP will see the light of PVP and join the vaccinated population. Although we did not discover such impacts as a result of communication in this forum, the data did provide insight into the dances between communication and information in a polarized discussion forum on social media.

Despite this forum being a divided debate on vaccine, perlocutionary acts were outweighed by illocutionary acts. Findings reveal that illocutionary acts encompass the primary interaction between AVP and PVP discussants in this forum. This supports Vanderveken's findings (1985, 181) that illocutionary acts embody the essence of social interaction in conversational exchange. He asserts that speakers perform illocutionary acts in conversations where they are most often in verbal interaction with other speakers who reply to them and perform in turn their own speech acts with the same collective intention to pursue a certain type of discourse. We posit that the failure to respond or engage in a forum expected of debate can turn functional discussion to off-track comments on information behaviour as seen in discussions criticizing information behaviour by both AVP and PVP. One participant pointed out, the overall tone of comments by AVP carry an air of emotion and passion that is met with discredit among the PVP: "After reading this thread, I've gathered that XXX is adding more emotion into her responses than necessary. XXX your clumping XXX in with stereotypical pro vax trolls yet you seem to be the one doing the trolling."

PVP locutionary statements primarily serve to criticize the information behaviour of anti-vaccination participants. Criticisms include types of resources shared or lack of evidentiary support by AVP to support their perspective. While PVP claim lack of evidentiary support for AVP claims, the data demonstrate that PVP do not provide evidence to back their comments either. Thus, within illocutionary acts we find the dance between communication and information. The act of asking for substantiating information is the communication point seeking formal information resources. Querying the information gets specific in these situations. For example, one post sought a study addressing aluminium in vaccine. However, the request specifically pointed to intramuscular injection of aluminium.

Provision of information, either in the form of a direct link or reference is the information. What we found is another form of illocutionary act: criticisms of information behaviour. Among AVP and PVP participants, these criticisms serve to discredit the opposition. For the undetermined vaccine participants, these acts can present as noise, embodying neither information nor substantive communication. In our exploration of a divided community, we found a difference between the structure of illocutionary acts and the structure of conversation. More precisely in illocutionary logic, illocutionary force is subdivided into two components, which demonstrate the informative role and subsequently divisive nature of the discussants around the topic. These components are information construction through communication and metainformation or information noise (Searle and Vanderveken 1985, 12–20).

Conclusion

In sum, we find that the failure to provide substantiating information by participants on both sides of the debate result in criticisms of information behaviour. These meta-discussions neither serve to inform nor provide substantive argument contributing to persuasion. In fact, we find that they dilute the conversation and degrade civility between opposing parties to the debate. Not to mention, they are distracting to the topic of vaccine in general since they focus on negatively expressed opinions about information behaviour. We surmise that an intentional focus to provide substantiating information would play a crucial role in debate. This leads us to consider the role of information among speech acts that inform debate. In essence, the application of SAT theory provided an unexpected outcome of our research as it relates to the use and role of information in conversation. And it is one that warrants consideration and examination, particularly in OSM fora around divided information contexts that inform everyday decisions.

Findings beg further research on classification of intent of self-shielding on conversation. As we noted earlier, the act calls for consideration of a new category of SAT as it exceeds the definition of locutionary act as declarative statements. Such utterances seek neither a response nor to convince or sway perspective. They serve to establish the group member's perspective on a debatable issue. Yet self-shielding carries an intent of barring response from others. Thus, it fails solid classification within any of the three speech acts.

Not only will the vaccine debate continue into the near future, undoubtedly the vaccine debate forum will remain bifurcated. And it will extend, most likely, into the world beyond social media in an era of COVID-19. Of particular note, self-shielding behaviour is an act expressing strong messages of what the speaker desires in response. Strategic application of SAT serves to inform communication more intimately providing a mechanism to speak strategically, empowering effective engagement in divided discussion. Strategic application of SAT shifts focus from speaking our thoughts to one of speaking so that others hear, reflect, and engage in an effective manner. A focus on strategic communication and information sooner rather than later may lead to an answer that accomplishes the goal…immunity devoid of offense, willingness to consider the "other," and work toward solutions.

Acknowledgements

We acknowledge the assistance of Amanda Ostaszewski, doctoral student at the University of Alabama, in the initial data analysis.

Funding and Disclosure Statement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for profit sectors. No potential conflict of interest was reported by the authors.

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