Love and Fear? Affect, Public Engagement and the Use of Facebook in HPV Vaccination Communication

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Abstract

Social media are increasingly envisioned by public health authorities as a new promising arena for public engagement. Against this backdrop, this article attends to how citizens confirm, debate and resist governmental framings of health information online. By drawing upon STS and affect theory, it centers on the digital mediation of feelings on a Facebook engagement site for HPV vaccination. While the public authorities framed HPV vaccination as a matter of love and fear, a wide register of positive and negative feelings were mediated on the site. The article proposes the notion of 'digitalised literary devices' to analyse how mundane literary habits, such as the use of punctuation, online have been transformed to digital devices that, for instance, mediate public feelings. By conceptualizing public engagement as 'civic intensities', it shows how digital devices, such as digitalised literary devices, mediate and intensify public feelings of engagement.

Keywords: HPV vaccination, social media, affect, public engagement, health communication, science communication

Introduction

Social media are increasingly envisioned by public health authorities as a new promising arena for public engagement (Lupton, 2014). Within this context, it is argued that citizens' vaccination fear can be productively counteracted through citizen-expert dialogue on social media (Betsch et al., 2012). Against this backdrop, this article centers on a public health Facebook campaign – entitled "I love me" – for human papilloma virus (HPV) vaccination. It discusses how HPV vaccination communication was framed by public authorities (a Swedish county council) as a question of love and fear, and how lay citizens used the Facebook plat-form to affectively support, debate and resist this framing of the public concerns involved.

In Sweden, the HPV vaccine *Gardasil* is since 2010 part of the national vaccination program to prevent girls from cervical cancer and genital warts.[1] It is offered free of charge to girls in grade 5 or 6 (girls age 11 to 12). This is similar to many other European countries, who also implemented HPV vaccination for girls as part of national vaccination programs around the same time (for example, in the UK it was introduced to girls in 2008, see Hanbury, 2017). Until 2016, girls and young women up to 20 years old were in Sweden offered the vaccine free of charge via a so-called

catch-up vaccination scheme (and up to 26 years old in the county council studied in this article). This article only concerns the catch-up vaccination.

HPV vaccination communication needs to be understood against a backdrop of other vaccine debates. Currently, vaccine policies and media discourses articulate a concern that citizens increasingly distrust the safety of vaccinations (Leach and Fairhead, 2007), and that this may affect the HPV vaccine uptake (Wailoo et al., 2010). This discussion is especially made with reference to recent vaccine controversies around the measles, mumps and rubella (MMR) vaccine and the H1N1 (Swine flu) vaccine *Pandemrix*. In 1998, Dr Andrew Wakefield wrote an article claiming a link between the MMR vaccine and autism. While this link later became discredited and the article was retracted, the article's impact on vaccine debates is still persistent. It is often mentioned as a starting point for a current trust crisis in vaccinations (Hobson-West, 2003; Bragesjö and Hallberg, 2009). As Gottlieb (2018: 126) writes, the article can be understood as "the origin story immunisation advocates tell about vaccine resistance". Also, in current vaccine policy and media discussions, the 2009 controversy around *Pandemrix* and narcolepsy is described as a case that further increased a breakdown of trust in vaccines (Dupras and Williams-Jones, 2012). Public health authorities are responding to such perceived trust crisis, for example through a range of public health communication initiatives – the Facebook site analysed here being one of them. The county council who launched the campaign hoped that a dialogue between the county council, girls and parents on Facebook would decrease girls' and parents' fear over the HPV vaccination, and that it would allow for public engagement with HPV vaccination information.

In practice, however, the site got populated by other public actors, and especially vaccine critical ones. Vaccine critics argued that the vaccination and the campaign were generating harmful effects, and that they therefore were upsetting issues in need of public attention and critique. For example, they accused the county council to cover the truth about HPV vaccination by representing the vaccination through an imagery of happy, positive and pink girls.[2] Importantly, while the county council envisioned the campaign site to center on sharing feelings of love, the communication on the site included a vide register of positive and negative feelings.

This article combines STS insights on the public engagement with science with affect theory to analyse the importance of affect and feelings – such as love and fear – to understand public engagement on the "I love me" Facebook site. It aims to provide knowledge about the affective politics of digitally mediated online HPV vaccination communication, and how it matters for our understanding of public engagement in vaccination (public health) science. More broadly, I argue that the "I love me" Facebook campaign is a good case for understanding affective engagements with science and science communication online.

STS scholars have emphasised the important role of, for example, passion, enjoyment and frustration in public engagement initiatives (Harvey, 2009; Davies, 2014). Public engagement arenas are full of "public expressions of delight and interest" as well as of "frustration, rage, and humiliation" (Davies, 2014: 103). Relatedly, in social studies of vaccinations, the importance of fear, anxiety and trust to understand the interplay between medical and lay expertise is extensively analysed (Hobson-West, 2003, Leach and Fairhead, 2007; Gottlieb, 2016).

In relation to HPV vaccine campaigns, it has been discussed how the vaccine has been promoted to parents (and along gendered lines, especially to mothers) through a focus on parental affection, love and care (Connell and Hunt, 2010; Lindén, 2017). Girls, in turn, have been addressed through a framing of the vaccine as a positive message about girl empowerment and individual choice (Mamo et al., 2010). As Maldonado Castañeda (2017: 129) argues, these "narratives around girlhood, women's empowerment, motherhood and parental care have had a global reach". Accordingly, campaigns in, for example, Sweden (Lindén, 2016, 2017), the US (Mamo et al., 2010) and Colombia (Maldonado Castañeda, 2017) share striking similarities concerning affective and gendered representations of parental care and girl empowerment.

HPV vaccine campaigns can be defined as "emotion-risk assemblages" (Gottlieb, 2018: 23), this as they are designed to invoke bodily reactions, sensations and intensities. They want parents to *feel* "that could be my daughter", and they encourage girls to *feel* empowered ("I *can* do it!"). While this holds true, affect, emotions and/or feelings are not the central focus in previous studies of HPV vaccine campaigns (but see, Lindén, 2016). Instead, these matters are mentioned, often in passing, to analyse *other* issues, such as discourses of gender, individualised responsibility and neoliberal public health governance (Mishra and Graham, 2012; Gottlieb, 2018).

I combine an analysis of the communication on the "I love me" Facebook site with an analysis of interviews with county council professionals who worked with the campaign. I center on the digitally mediated communication between the major groups involved: the county council, girls, young women, parents, and a vaccine critical group. Drawing on this collection of materials, I further expand upon the focus on feelings in public engagement and in vaccination politics. With the focus on social media, I add to the current discussion insights on the digital mediation of feelings in health communication, and in vaccination politics. I propose the notion of 'digitalised literary devices' as a concept to analyse how mundane literary habits, such as the use of punctuation, online have been transformed to digital devices that, for instance, mediate public feelings. Moreover, I argue that while vaccine fear, anxiety and trust are at the core of discussions in social studies of vaccinations, how feelings matter in public engagements with vaccination politics can be further developed. By drawing upon theories that attend to affect as intensity, I stress the productivity of analysing public feelings about vaccination concerns as (digitally) mediated through 'civic intensities' (Papacharissi, 2014: 25).

Public engagement and vaccination politics

The use of social media in health communication practice is part of a larger trend within science communication where online media is becoming more and more popular (Wyatt et al., 2016; Davies

and Hara, 2017). Social media are envisioned and promised "to open up science, enable dialogue, and create a digital public sphere of engagement and debate" (Davies and Hara, 2017: 564). In the context of vaccinations, Reynolds (2010) argues that using health authorities' Facebook sites as discussion forums can increase citizens' trust as it allows them to debate and evaluate vaccination evidence. Directly in the context of HPV vaccination, it is stressed that social media is a "key strategy to disseminate accurate information and dispel some of the mis-information that is spread by the anti-vaccine movement" (Zimet et al., 2013: 416). Thus, health communicators envision online public engagement to enable effective vaccination communication, and counter-act vaccine critical mobilisations.

Yet, several studies also warn against how social media, quite contrary, enable an increased dissemination of misinformation (Kata, 2012). It is feared that the anti-vaccination movement will, for example through so-called "trolling", "hijack" health communication online platforms (Wilson and Keelan, 2013). While vaccine critics have existed as long as there have been vaccines (Colgrove, 2006), these authors emphasise that the internet in general, and social media in particular, have provided the anti-vaccination movement with expanded opportunities to spread their message and agenda (Dubé et al., 2015; Getman et al., 2017).

Vaccination practice is often assumed to consist of vaccine proponents, vaccine accepters and the anti-vaccination movement. Since there are degrees of acceptance (Streefland et al., 1999), and different forms of vaccine critique (Gottlieb, 2016), this is a problematic simplification. Usefully, Hobson-West (2007: 204) argues for the notion of 'vaccine critical groups' as preferable to 'the anti-vaccination movement'. Based on an empirical study of vaccine critique in the UK, she distinguishes between *reformist* vaccine critical groups, "who often have personal experiences of children believed to have been seriously injured following a recommended vaccine", and *radical* vaccine critical groups who "do not necessarily have personal experience of vaccine damage" (Hobson-West, 2007: 204). She makes a separation between how reformists not necessarily are

against vaccines in general, and radicals who tend to pursue more of an anti-vaccination agenda.

Expanding upon Hobson-West's (2007) notion of a vaccine critical group, I will discuss a vaccine critical *public*. I prefer the wording *public* rather than *group* as the former emphasises the specificities of a lay group's status as a crowd of lay citizens (compared to groups that can include public authorities etc.). The vaccine critical public that was present on the "I love me" site can roughly be understood in line with Hobson-West's (2007) description of a radical vaccine critical group, this as it often pursued a critique against vaccines in general, and did not primary draw upon personal experiences of vaccine injury. Similarly, I define girls, young women and parents writing comments that were supportive towards the campaign and the HPV vaccination, or who liked or shared vaccine promoting messages, as another public. In defining critics and supporters as different publics, I follow Marres's (2007) conceptualisation of publics as constituted through their engagement with a specific issue (here, HPV vaccination). I am, thus, interested in how civic actors' very engagement constituted publics on the Facebook site. What I refer to as critics and supporters are, thus, understood as positions constituted *in relation*; in relation to each other and in relation to the Facebook platform.

The fear present in vaccine and health communication literature that the anti-vaccination movement will "hijack" communication platforms reflects a larger tension within public engagement with science concerning *which* citizen it is imagined will engage with public issues. Public engagement events tend to be limited through public authorities' and/or scientists' specific framings of how the concerned public *should* engage with science (Lezaun and Soneryd, 2007). That is, there are specific parameters for how engagement should take place (Michael, 2012). Public engagement events often constitute "a highly formalized and carefully choreographed form of engagement" (Lezaun and Soneryd, 2007: 282), and they easily exclude or marginalise dissent and opposition (Elam and Bertilsson, 2003).

Public engagement events easily reproduce – and quite paradoxically so considering how

they aim to *engage* citizens in science – a deficit model of public involvement in science (the idea that citizens misunderstand scientific findings, and that more information will solve the problem) (Elam and Bertilsson, 2003). In the context of online science communication, research shows that there often is a tension between a promise of a participatory two-way citizen-expert dialogue, and how a one-way deficit model in practice often is reproduced (Davies and Hara, 2017). Notably, the very idea that health communication can be used to *disseminate* accurate vaccination information and *dispel* misinformation, builds upon a deficit model (Hobson-West, 2003; Gottlieb, 2016).

There is a tension between idealised forms of engagement (the "good" participant) and "unruly" citizens who disrupt, induce mess and "misbehave". For example, Gottlieb (2016) shows that vaccine critics often are silenced or marginalised since they are seen as not doing public engagement the right way. Following others (Michael, 2012; Davies, 2014; Mendel and Riesch, 2017), I believe it is important to attend to how citizens do not engage with science in 'the right way', this since it may challenge predominant forms of science communication. As Michael (2012: 529) writes, "[e]ngagement events can entail a range of happenings which, in one way or another, 'overspill' the empirical, analytical, or political framing of the engagement event". That is, "[l]ay participants 'misbehave' in various ways – they 'overspill' the parameters of the engagement event" (Michael, 2012: 529). 'Overspillings' can be understood as "those activities or actions that do not make sense within […] the framing of the engagement event" (Michael, 2012: 529).

Michael (2012) and Mendel and Riesch (2017) show that attending to citizens' misbehaviours – how they 'overspill' the parameters of the event – can shed light on hierarchies and tensions within public engagement initiatives. They interestingly mention affective matters such as irony, jokes and mockery as examples of citizens' misbehaviours (Michael, 2012: 532-533; Mendel and Riesch, 2017: 675).

I build upon STS insights about framings and overspillings to analyse how publics can confirm and overspill public engagement framings of how HPV vaccination should be discussed. By focusing

on *affective* framings and overspillings *online*, the article contributes to the discussion on feelings in public engagement with science (Davies, 2014), and on fear, anxiety and trust in vaccination politics (Leach and Fairhead, 2007; Gottlieb, 2016).

Digital mediation and public feelings

Within the social sciences, during the latter years there have been an increased attention towards affect, emotions and feelings. Many theorists separate these notions from each other. Notably, for cultural studies scholar Massumi (1995: 88) they are conceptually distinct as they "follow different logics and pertain to different orders". According to Massumi, affect is a pre-personal bodily intensity and force that exists outside of social signification. It is an unpredictable excess, something "*more than* discourse" (Seigworth and Gregg, 2010: 24, emphasis in original). Feelings, on the contrary, are, according to Massumi (1995), personal experience and emotions, finally, are the communication of feelings and are social and public. Here "affect is a 'non-conscious experience of intensity', which permits feeling to be 'felt' and subsequently transcribed into emotion" (Papacharissi, 2014: 21). In line with this conceptualisation of affect, scholars have started to explore social media as "more than" discourse; as a site of intensity, sensations, force and excess (Papacharissi, 2014; Hillis et al., 2015).

I believe it is productive to discuss affect as intensity. Helpfully, Papacharissi (2014) conceptualises public engagement as 'civic intensity'. Papacharissi (2014) shows that social media platforms can *intensify* "public feelings of engagement" (Papacharissi, 2014: 8), this since they allow citizens to *affectively attune* to public politics. Affect as civic intensity, thus, allows feelings to be "felt". Feelings of engagement, I argue, are enabled by processes of (digital) mediation (Kember and Zylinska, 2012), this as these allow for civic intensities. Worth noting, however, is that this does not mean that the Facebook platform *itself* intensifies public feelings of engagement. Rather it is in the meeting between – the relationality of – the platform and humans that feelings can be intensified and invoked. In an STS spirit, I am interested

in the specificities enacted by material-semiotic relations (Haraway, 1997; Law, 2009). More specifically, I am concerned with how public feelings are relationally mediated when science communication and vaccine debates move online.

I also draw upon STS inspired device perspectives to digital media (Gerlitz and Helmond, 2013; Weltevrede et al., 2014). Broadly speaking, a device perspective explores the interplay between technicity and humans. Within this approach, devices can be understood as material patterned arrangements that "assemble and arrange the world in specific social and material patterns" (Law and Ruppert, 2013: 230). Using a device perspective helps me to analyse the digital mediation of feelings since it provides tools for analysing the performativity of specific digital features (digital devices). One central aspect of Facebook communication is people's use of the comment feature. That is, people write comments, and they respond to each other's comments. Moreover, they communicate by using the like and share feature. All of these human-technology actions – material-semiotic relations – *do* things, such as mediating public feelings of engagement. By combining a device perspective with Papacharissi's (2014) focus on social media as an arena for public feelings of engagement, it is possible to analyse how digital devices invite citizens to affectively attune to public issues like HPV vaccination. For example, the comment feature is a device that invites citizen to engage with public issues. Reading an affectively formulated comment can invoke a bodily intensity that attunes you to engage with public issues in an affective manner. Such engagement can then, for example, take the form of writing that you are angry, upset or happy (and/or that you click "like"). Therefore, the comment device, as well as the like and share devices, can be argued to mediate public feelings of engagement.

The study and empirical material

The selection of empirical material used as the basis for this article consists of six interviews with communicators, epidemiologists and nurses who worked with the "I love me" campaign (I have interviewed the majority of the professionals who

were involved in the work with the "I love me" campaign), and the material from the Facebook site. The latter consists of 537 screenshots of status updates and comments taken by me. To allow for anonymity, I have coded names, organisations and places. This body of empirics is part of a larger project on HPV vaccination health communication initiatives in Sweden (Lindén, 2016).

The Facebook site was part of a larger "I love me" campaign which included posters on public transportations, a vaccination tour to high schools and pamphlets sent home to girls and parents. The campaign was running between 2012 and 2016, and its Facebook site existed between 2012 and 2013. People did not need to be granted access to read and comment on the Facebook site.

I have taken inspiration from ethnographies which follow communication online (Hine, 2000), and that sometimes combines this with offline methods, such as with interviews (Sade-Beck, 2004). However, I did not participate in the communication on Facebook myself, this since I accessed the data after the site was publicly closed down (to enable access, the concerned county council temporary added me as a site administrator). Due to the same reason, I collected all the empirical material at one occasion, instead of observing the communication over time. My approach can be understood as what Haraway (1997) defines as an 'ethnographic attitude'. This is a mode of theoretical and practical attention where one does not "take sides" in a predetermined manner, but instead puts oneself at risk (one's subjectivity, views, etc.) in the meeting with others.

I have used analytical coding to identify similarity and difference in the empirical material. In this process, I have attended closely to the role of digital devices, and how feelings were provoked by such devices. Analytically I have separated between a vaccine critical public and girls, young women and parents supportive of the campaign and the vaccination. I am aware of that this risks reducing differences within the concerned groups. Moreover, I have not included actions, such as comments and likes, that are difficult to locate as either support or critique. While more ambiguous cases exist, the dialogue on the site was, in fact, to a very high degree strongly divided between supportive girls, young women

and parents, on the one side, and critics, on the other (worth mentioning is that critics might have been parents, too, but most often this was not something they wrote about).

I start by discussing how the county council framed the "I love me" campaign. Then, I move on to discuss how the communication between the county council and citizens unfolded, and how different devices mediated this. I end with discussing what my study can say about the digital mediation of feelings in public engagement with science, and in vaccination politics.

A "positive feeling" campaign

In three campaign images posted on the Facebook "I love me" site in 2013, girls were accompanied by the phrases, "take care of yourself this summer!" and "get vaccinated against cervical cancer now", written in pink.[3] In another image, a similar photo of girls was accompanied by the text "Nothing is more important than you!", also in pink. Along with the image was the following status update posted: "Spread and share with your friends!". Sharing means sharing *on Facebook*. In these images, HPV vaccination is framed as something girls do to take care of themselves, and their friends. Moreover, getting vaccinated is framed as something that you ought to do now, as an urgency, to prevent something from happening later on, in the future.[4]

Several of my informants described the "I love me" campaign, including its Facebook site, in a similar way. One of them said:

> The basis of our campaign is that we want to empower the girls. We want to, you know, get them to feel and think that "I do something good for myself. It's my own decision, but if I do this I think about my own health and I do it for myself". That is, you know, what's behind the message of "I love me".

Here, as in the images above, getting vaccinated is viewed as something girls do for themselves. In a similar vein, another informant emphasised that the campaign communicates that it is "*your* body, what *you* think of it, I love myself, I love me". The county council wanted the campaign to, as one of my informants said, communicate "a positive feeling". Similarly, on the Facebook site, the county

council described in the information about the site that they "want the site to have a nice and pleasant tone". In sum, the "I love me" message was by the county council emphasised as a positive message about girl empowerment and love.

The county council's idea with the "I love me" Facebook site was that they could post updates, and that girls, young women and their parents could ask questions and get answers from the county council or from each other. The county council, as my informants explained, envisioned these updates and questions to be about, for example, vaccine fear, as well as about where and how to vaccinate. A deficit model of public involvement in science was central: girls and parents were envisioned to lack knowledge about HPV vaccination, and more (accurate) information was thought to solve the problem. A deficit model was combined with an idea that information needs to be communicated *through* an affective message about love (and here, the "I love me" campaign share similarities with other HPV vaccine campaigns that combine affective and factual modes of address, see for example, Connell and Hunt, 2010). One of my informants explained this as a need for a "combination of messages" where some messages are "strictly fact-based" and others are focused on communicating feelings. This, combined, was by the county council hoped to decrease girls' and parents' vaccine fear.

The county council understood it as a problem when citizens used the Facebook site in ways that did not fit the county council's framing of how communication *should* unfold. For example, one of my informants viewed it as a problem that citizens referred to the HPV vaccine critical site Mothers Against Gardasil. She said that "[e]veryone is allowed to think differently but sometimes it gets a bit … Perhaps it isn't really things that are in accordance with our main aim that are posted on Facebook". In a related vein, another of my informants said:

> [D]uring periods, it was many girls that were active and active in a way we wanted […] [T]hey could communicate with each other on this theme [i.e. e.g. where to get vaccinated] and they could ask us questions. "Where do I get vaccinated?"; "Is it dangerous?" […] [B]ut during long periods it was mostly disorder and a mess of different groups of

people with different opinions that talked with each other. And that didn't support the vaccination goal […] It wasn't at use for the target group […] It became an arena for mud throwing.

Yet another informant said: "I can just think that it becomes so biased that it's not balanced and, you know, scientific […] It's a shame that it's possible to distort science like that". In these quotes, disorder and mess, mud throwing and Mothers Against Gardasil were seen as problems that complicated the possibility of having a dialogue with girls about matters that were in line with the aim and goal of the county council, and that were seen as helpful for the girls.

These extracts show that the county council wanted the Facebook site to facilitate *specific* forms of public engagement. The Facebook site was an arena for public governance, and this limited what citizens could say and do. Citizens who did not engage with HPV vaccination in the way the county council wanted were seen as distorting the good forms of public engagement. It was a "carefully choreographed form of engagement" (Lezaun and Soneryd, 2007: 282).

The county council eventually closed down the Facebook site since they believed it was not working as an arena for vaccination engagement. Perhaps above everything, this highlights how it was an arena limited by the county council's framing for how citizens *should* engage with HPV vaccination science and information. When realising that things did not turn out the way they wanted, the county council – not the citizens – had the possibility to close down public engagement. This shows that, while social media enable citizen-expert dialogue, it is certainly not a given that such online dialogue holds up to its promise of opening up science for debate.

To summarise, the "I love me" campaign was framed by the county council as a "positive feeling" message about girl empowerment and love. The Facebook site was envisioned to combine such a positive and empowering message about love with a possibility for girls and parents to communicate with each other, and with the county council, about HPV vaccination concerns. Especially, this was hoped to allow the spread of accurate information, and the decrease of vaccine fear.

Mediating support

When the county council in the beginning of 2013 posted an update with the information that the vaccination was now given free to girls and young women up to age 26, some girls and young women wrote and asked about how, and where, they could get vaccinated. Also, girls and young women showed enthusiasm over the vaccination. For instance, the young woman Karin wrote: "Finally!!! Damn, this is good! The first shot already taken an hour ago ☺ Quick decisions, hurray!". The county council answered these questions and comments by writing information about vaccination locations, the safety of Gardasil, and through encouraging assurances. For example, they answered Karin by writing: "Awesome with action Karin! Great if you encourage your friends, too. Have a super great weekend ☺". Answers like these can be understood as in line with a framing of "I love me" as a "positive feeling" campaign that disseminates accurate information, and provides happy, empowering encouragements.

Many more girls, young women and parents confirmed the "positive feeling" message through enthusiastic comments. For example, as a response to a citizen writing that she has gotten vaccinated a young woman wrote: "U goo girl!!!! […] I have taken the shot and I feel so good…". In line with the governmental framing of the "I love me" campaign, this woman defined HPV vaccination as a case of empowerment ("U goo girl!!!") and as something positive ("I feel so good"). Just a few minutes after this comment was posted, another woman named Annie wrote that she has been afflicted by cervical cancer and that it, therefore, is a given choice for her to vaccinate her daughter. She ended her message with "Cancer sucks!!". Further down, she continued:

> How AMAZING that this is for women […] I who have had cervical cancer and have had surgery, I'm HAPPY and relieved that my daughter can protect herself from having to go through the same thing. […] How could I as a mother and my daughter say no to that[?] Hurray, kill the cancer!!!!!

Here, comments such as "AMAZING", "I'm HAPPY and relieved" and "Hurray, kill the cancer!!!!!" communicate that HPV vaccination is something desir-

able and good, and that it is a positive, happy message that one can protect oneself or one's daughter against cervical cancer. This is mediated through the comment feature on Facebook.

The girls, young women and parents who wrote that they were happy, relived and felt "so good" did so as responses towards other citizens' comments, and in response towards the county council's status updates. For instance, Annie who wrote that the vaccination was "AMAZING" wrote this in explicit dialogue with other citizens on the Facebook site that, according to her, "are negative or suspicious". Similarity, the woman who wrote that she felt "so good" did so in response to a citizen who wrote that Gardasil does not protect against cancer. As these two women did, supportive citizens mainly answered critics, not by writing angry comments back, but by stressing how good they felt, and how awesome the vaccination is. Importantly, while affective ways of engaging with HPV vaccination information was mediated through the comment feature, citizens' ways of engaging with each other *through* this device was important. It allowed citizens to, in text, respond to others' comments, status updates etc., and that communication between citizens was a crucial aspect of how public feelings of engagement were evoked.

How supportive and critical citizens responded to each other's comments indicates how affect can work in relation to the comment feature. As a device, the comment feature allows for affective engagement as it enables people to write that they, for example are "HAPPY and relieved" in response to a public issue. On the "I love me" site, such comments likely invoked bodily intensities and sensations that *attuned* citizens, when reading the comments, to (further) engage with HPV vaccination matters affectively (by, for example, responding that they, instead, are angry or upset or by "liking" the comment). Therefore, I argue that the comment device mediated public feelings of engagements.

I argue that the comment device not only mediated, but also intensified, feelings of engagement. One way to intensify feelings of engagement is to use different ways to indicate the message's emphasis. In the above-mentioned examples, citizens used, at least, three such

techniques: upper-case lettering, punctuation and emojis. Through upper-case lettering ("AMAZING") and through the use of several exclamation marks ("U goo girl!!!!") the enthusiasm – just *how* amazing, great or awesome it was – was emphasised. Since these techniques, through the comment device, enabled the citizens to more strongly and forcefully emphasise HPV vaccination concerns, I argue that they intensified public feelings of engagement.

As Scheible (2015: 10) argues, the practice of punctuation, such as how people use exclamation marks, has in the digital era shifted from being about linguistic clarity, to a means to enrich viewer and reader responses. Also, emoji has been transformed into a punctuation mark used to indicate the affective state of a message (Baym, 2015: 68). Hence, punctuation marks register feelings and expressivity. They "help us hear how text might sound if it were to be spoken" (Scheible, 2015: 10). Based on this, it is possible to see how comments such as "AMAZING", unconventional uses of punctuation ("!!!!!") and emojis may intensify people's feelings of engagement. Reading a comment such as "AMAZING" or "!!!!!" does something to you; it attunes you to – encourages you to – respond back in an affectively engaged manner. On the "I love me" site it seems to have provoked further affective engagement and public feelings of engagement. Here, the use of exclamation marks, emojis and upper-case lettering can be defined as *digitalised literary devices*. Such devices, I argue, can mediate, intensify, enact and transform feelings.

I have shown how the county council's framing of a "positive feeling" campaign was confirmed, and intensified, through enthusiastic and positive comments. Such comments were written in response to the county council's status updates, or to others' comments, and were mediated by the comment feature and digitalised literary devices. I will, among other things, continue to analyse the comment device and digitalised literary devices in the next section. In this section, I turn to how comments from vaccine critics were mediated.

Mediating criticism

A vaccine critical public used the Facebook site to pursue critique. As an example, a man wrote a response to the already mentioned mother Annie who had previously expressed enthusiasm over HPV vaccination. He wrote:

> Gardasil does not protect against cervical cancer … It protects against 4 out of 120 HPV viruses. And it is not at all clear that HPV viruses lead to cancer. Therefore, it is *insane* to pursue mass vaccination like it is done here. Annie, what do you know about all the *awful* ingredients that are a part of the Gardasil vaccine? […] It is *senseless* that this continues (emphases added).

In stating that Gardasil only protects against certain strands of HPV viruses (i.e. HPV type 6, 11, 16 and 18), this man drew upon 'science-as-epidemiology' (Leach and Fairhead, 2007) to critique HPV vaccination as a population-level state intervention (as he wrote, a mass vaccination). By stating that, since Gardasil does not protect against cervical cancer, mass vaccination is *insane* and *senseless* (and that the ingredients in Gardasil are *awful*), this citizen critiqued the scientific basis for the vaccination through an affective comment. In contrast to how the county council framed Gardasil as a vaccine against cervical cancer, and not against HPV, he argued that since Gardasil only protects against some HPV viruses it is insane and awful with mass HPV vaccination. In a similar vein to this citizen, others wrote that the vaccination, and the campaign, were "horrifying", "awful" and "outrageous". All these critical comments were written as responses to the county council or to supportive comments. This is important as it shows how the comment device can *attune* citizens, such as vaccine critics, to critically engage with public issues.

Interestingly, while vaccine supporters – such as the mother Annie who I mentioned in the last section – often drew upon personal (often parental) experience, critics seldom did so. Instead, and as the citizen above who wrote that "Gardasil does not protect against cervical cancer" did, they often disputed scientific evidence about HPV vaccine safety and efficiency through affective comments. As Durbach (2006) writes,

radical vaccine critical groups do not always draw upon personal experience. Instead it can be out of, for example, political, religious and/or health-related reasons citizens resist vaccinations. Still, it is nevertheless common that also radicals draw upon personal experiences (Blume, 2006; Hobson-West, 2007). In that regard, the critical public on the "I love me" campaign stands out as different.

Many vaccine critical actors used upper-case lettering, punctuation and emojis as, what I have defined as, digitalised literary devices. For instance, as part of another commenting thread, a citizen stated "IT'S ENOUGH NOW!!!!!!!!!!!!", implying that we need to stop vaccination as it hurts people. Another citizen wrote to the county council was "AWFUL!". As with the enthusiastic and positive comments, these citizens used upper-case lettering and serval exclamation marks, and I argue that these digitalised literary devices mediated feelings of engagement. Moreover, they were not only mediated, but also intensified. Stating that the county council was "AWFUL!" – and not simply "awful" – just *how* awful the county council was, was intensified. Moreover, the use of exclamation marks and upper-case lettering in the comment "IT'S ENOUGH NOW!!!!!!!!!!!!" indicates that the commenter was *very* upset. Such digitalised literary devices help the reader to hear how the comment might have sounded if it would have been spoken, and in doing so they mediate and intensify feelings. They help intensify the affectivity of a comment.

Another by vaccine critics frequently used digitalised literary device was irony. Perhaps it can be questionable whether this is a device, but I argue that such conceptualisation helps attune to irony as a digital technique frequently used by, for example, marginalised actors in political online practice to critique dominant political orders (Rone, 2009). One form of irony used on the "I love me" site was to comment that the county council was joking. For example, in one thread, a citizen reacted when the county council wrote that HPV vaccination lack severe side-effects. "Funny joke! […] You don't fool anyone but yourself!", the citizen exclaimed. Here, "funny joke", of course, means the opposite: it is *really not* funny. HPV vaccination is something dangerous and awful, it is *not* funny. To exemplify with another example,

in a comment, the county council stated that if a pharmaceutical would be proved dangerous it would become prohibited by the Swedish Food and Drug Administration. A citizen replied: "Hahaha, today's joke". These citizens used irony to position themselves as the ones who understood that it is all a joke, and the ones that had the true HPV vaccination knowledge.

Here, irony can be understood to intensify public feelings; it encourages citizens to further engage affectively with HPV vaccination issues. Through laughter, mockery and humour, vaccine critics responded to the county council's updates by treating them as funny jokes. In doing so, they presented the county council as *amusing* rather than as an actor worthy of taking seriously. In using such 'humorous technique' (Malmqvist, 2015) to disqualify the county council's updates, the vaccine critics use of irony is similar to that described by Mendel and Riesch (2017). Mendel and Riesch's (2017) analysis illuminates mockery, irony and laughter as central aspects of civic resistance towards online science communication campaigns.

Not only the HPV vaccination, but also the "I love me" message was critiqued through irony. For example, as a comment to a discussion about an image uploaded by the county council of an eye with colorful make up, a citizen wrote: "The image illustrates the thread very well. The common denominator is well painted". Here, through ironic language, it was implicated that the county council, and citizens supporting the county council, "paint over" the truth with nicely done make up, and a nice-looking image. Similarly, another citizen wrote: "Look at how pink, happy and lucky you become when you get vaccinated!", followed by a comment that the campaign is advertising that tax-payers have to pay for. This, of course, means that opposite: you will *really not* become that happy and lucky, the citizen communicates. In these examples, HPV vaccination as a population-level intervention is critiqued through irony, and it is implied that the county council hides the truth about HPV vaccination behind a pink, positive and happy message.

A final example of irony I want to bring up is how trolling and hacking were mediated. Critics repeatedly wrote that the people from the county

council commenting on the "I love me" site in fact were trolls – and that the site was hacked. For instance, a citizen wrote that "one could just as well call an automatic answering machine – it is only so-called trolls answering the questions on this site". Another asked: "Is this thing hacked?". When the county council replied that the site was not, the same citizen simply wrote "NO". Quite interestingly turning things around, the vaccine critics who by others in vaccination literature often are accused for hijacking health communication platforms and acting as trolls (Wilson and Keelan, 2013), did in these comments accuse the county council for being the true hackers and trolls. These citizens were, by turning things around, 'misbehaving' by playing with dominant discourses about how vaccine critics act online as trolls and hackers.

Since they are online phenomena, the references to trolling and hacking are good examples of specifics in how irony might be invoked online. On the "I love me" site, comments about trolling and hacking were used in a manner similar to what Mendel and Riesch (2017) describe as a position of a gadfly. By repeatedly writing short comments such as "Is this thing hacked?", critics acted somewhat as a "swarm of gadflies biting at the campaign in order to spur it on to different things" (Mendel and Riesch, 2017: 679). The critics position of being gadflies was an affective engagement that served to mess with the county council's framing of HPV vaccination, and that urged the county council to respond (including that they eventually decided to close the site down).

In sum, critics used the comment feature on Facebook to mediate that the HPV vaccination and the "I love me" campaign were problematic. They "misbehaved" by arguing that the campaign's "positive feeling" message hides the truth about HPV vaccination as an awful and insane population-level state intervention, and they used a range of digitised literary devices (such as punctuation and irony) to do so. With my focus on digital mediation through the comments feature, including how it enabled different digitalised literary devices, I have, so far, ignored two of the most obvious Facebook devices: the like and share features. I now turn to these.

Likes and shares as mediators

Earlier I mentioned one comment where a critic wrote that it is "horrifying" with HPV vaccination. This comment was the one that generated the most likes (22 likes) as part of that specific thread. In contrast, enthusiastic comments from girls, young women and parents, and responses from the county council, received only one or two – and even zero – likes. Yet, the status update from the county council that generated the above critical comment got 409 likes, something which also was the highest amount of likes during the time the site was running. In addition, it received 246 shares.

How to understand this? Similar to emojis, punctuation and upper-case lettering, like and share features mediate communication (Gerlitz and Helmond, 2013), including affective communication (Peyton, 2012). Moreover, to like and share on Facebook is translated into a visual numeric representation. As Gerlitz and Helmond (2013: 1360) argue, on Facebook "numbers have performative and productive capacitates, they can generate user affects, enact more activities and thus multiply themselves". The like and share features mediate communication through numbers, and such numbers can mediate feelings of engagement and can enact further engagement.

The number of likes on the critical comments in the above example is an 'overspill' from how the county council framed the Facebook site. While the county council wanted the site to have a positive feeling about sharing and liking a message about love, it was the critical comments – which did not confirm to the positive feeling of "I love me" – that were liked. In general, critical comments received more likes than the ones in line with the county council's framing. While it is impossible to know if all these citizens clicked on the like button because they in fact liked a critical comment, the act of clicking is performative and can, notwithstanding the intent from the citizen who clicked "like", serve to confirm the importance of a message. Moreover, as Papacharissi (2014: 25) writes, "affective attunement demonstrated through liking a post on Facebook […] is indicative of civic intensity and thus a form of engagement" (Papacharissi, 2014: 25). Just as digitalised

literary devices do, likes affect the intensity of a message, and of a commenting thread. They can be understood as a matter of civic intensity in how they can intensify public feelings of, for example, HPV vaccination being horrifying, awful or awesome.

Citizens made use of the Facebook features differently. It seems that many citizens supporting the campaign and HPV vaccination did not engage in the conversation through likes or through comments. Likely many citizens clicked "like" on status updates and sometimes shared a message to enable more friends to get vaccinated, but perhaps they did not do more than that. This is different from the vaccine critical public who quite extensively commented on status updates, and that liked other critical comments. Therefore, while criticism seems mainly to have been mediated through comments and likes, support of the campaign and the vaccination was probably to a high extent done so through shares.

It can be assumed that the share and like buttons transformed the communication. It is assumingly easier to dare to criticise when knowing that other citizens out there support your politics. The like button mediates such support. A high number of likes of critical comments, thus, helped to intensify vaccine critical engagements. Similarly, the share button, through its wide 'reach' (Baym, 2015) to others' walls and to other platforms, likely helped to intensify engagement with the idea that HPV vaccination and the campaign were positive and desirable matters.

Discussion: public feelings and mediated engagement

In this article, I have built upon STS insights about framings and overspillings in public engagement with science, affect theory on the mediation of feelings and a device perspective to social media to show how citizens confirm and overspill public engagement framings. I have analysed how a Facebook campaign for HPV vaccination communication entitled "I love me" was framed by the concerned county council as a "positive feeling" arena where love was to be shared and liked (and fear was to be counter-acted), and where girls and parents were to ask questions about, for example,

vaccine safety. In focusing on framings and over-spillings, I have analysed how many citizens confirmed the framing of the "I love me" as a "positive feeling" message through enthusiastic comments about how great the campaign and the vaccination were. I have also shown how vaccine critical actors 'overspilled' the county council's framing by arguing that the vaccination and the campaign were upsetting and horrifying, and that the county council, through the campaign, hid the truth. Moreover, I have attended to how different digital devices (punctuation, emojis, upper-case lettering, irony, likes and shares) affected the intensity of commenting threads and spurred further public engagement.

My analysis shows how the digital mediation of feelings can be central to citizens' engagements with science. This differs notably from the work of Papacharissi (2014) on 'affective publics' in online protest movements as my study highlights affective expression within a setting of governmental politics and public engagement with science. One important result from my study is how public feelings of engagement, mediated through digital media, can help to confirm the legitimacy of public health state interventions, and to dispute the same. By commenting that the vaccination was "AWESOME", by sharing the "I love me" message and by liking vaccine critical comments stating that the mass vaccination was insane, I argue that public feelings of engagement were mediated, and, often, intensified.

One central form of mediation is devices. I have introduced the notion of *digitalised literary devices* as a way to analyse how punctuation marks, emojis and upper-case-lettering can intensify public feelings of engagement. I emphasise that these devices are *digitalised* as this denotes how quite mundane literary habits, such as the use of punctuation, have been transformed through the digital era. I have also discussed how the like and share features mediate public feelings of engagement by making numbers performative. Importantly, in mediating public feelings of engagement, digital devices can allow publics to come into being through engagement with issues online, and enable them to confirm and overspill governmental framings of public engagement with science.

This article adds to research on science communication online (see Davies and Hara, 2017) through its focus on civic intensities as important to understand how digital media mediate public feelings of engagement. Moreover, it adds to social studies of vaccinations (see Leach and Fairhead, 2017; Gottlieb, 2018) through it focus on affective mediation rather than, primary, feelings of fear, anxiety, trust and parental love. On the "I love me" site, while the county council framed HPV vaccination as a matter of love and fear, citizens' engagement on the Facebook site included a multitude of feelings. As this case illustrates, citizens' engagements can sometimes be understood through specific feelings, such as love and fear, but often they can be more productively understood as civic intensities that allow diverse feelings to be "felt". Therefore, I argue for the productivity of an approach to health and science communication that attends to civic intensities as important for understanding the digital mediation of public feelings of engagement[5].

Acknowledgements

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Notes

1   Cervical cancer is associated with specific HPV types, most frequently types 16 and 18. These are the two types Gardasil, and the other vaccine Cervarix, vaccinate against. Also, Gardasil vaccinates against HPV types 5 and 11, which are associated with the development of genital warts.

2   Vaccine critics' critique of the county council's representation of girls as happy and pink is partly reminiscent of media scholars' and sociologists' critique of HPV vaccination campaigns as representing a neoliberal and gendered imagery of girl empowerment (Davies and Burns, 2014; Mamo et al., 2010).

3   All empirical material has been translated from Swedish into English by me.

4   As in these images, the "I love me" campaign tended to frame Gardasil as a vaccine against cervical cancer, and not against HPV. Such 'cancer frame' side-lines sexual politics (Mamo et al., 2010). As Maldonado Castañeda (2018) argues, a 'de-sexualization' of cervical cancer has been common in the public framing of HPV vaccination.

5   The HPV vaccination politics mobilized by citizens on the "I love me" site partly differed from how HPV vaccination has been discussed elsewhere. While citizens who supported the campaign and the vaccination tended to frame HPV vaccination in line with how it is often presented as a girls' choice (Mishra and Graham, 2012), critics tended to frame the vaccination as a matter of illegitimate population control. Thus, the critics differed from how HPV vaccination elsewhere has been discussed as a case of an individualization, yet gendering, of risk and girlhood (Wailoo et al., 2010; Davies and Burns, 2014). Critics were not primary concerned with politics of gender, such as questions of why girls, and not boys, were positioned "at risk" for cancer. Rather than critiquing neoliberalism and gender politics, their actions and statements echoed a long history of citizen mobilization against population-level vaccination, and for individual freedom (Colgrove, 2006).