

You can't beat the feeling: How emotional responses to exemplars in news stories affect perceptions of expert sources and the message of the news story

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Journalists include ordinary people as exemplars – also known as case sources – in news stories to illustrate the general issue through their personal accounts. These accounts from exemplars tend to evoke emotions in the audience and carry greater weight than base rate information when people form perceptions or attitudes on the problem at hand. In this study, drawing on a news story in which an expert source and an exemplar provide conflicting information, we explore viewers' emotional response to the exemplar and their perceptions of the expert source and the main message of the news story. We do this by presenting participants with two versions of a television news story – one with and one without an exemplar. We measure participants' emotional response through a combination of open-ended and close-ended self-reports and directly through electrodermal activity, and we explore their perception of sources and the message of the story through open-ended questions. We find that viewers experience increased arousal when they watch the personal account of an exemplar, and that they tend to interpret the base rate information in the light of the exemplar's account. Furthermore, some respondents tend to delegitimize the

expert source that contradicts the account of the exemplar. We discuss the implications that these results have for journalists and provide tentative advice on which measures journalists can take to counter such effects.

Keywords: exemplars, sources, emotions, experts, EDA measurements, self-reports

Introduction

Journalists include different types of information in news stories about general, abstract societal issues or problems. One type is base rate information that describes the basic issue and – often through statistics or general evidence – outlines the scope and the implications of the issue. Such information is increasingly provided, validated or interpreted by expert sources (Albæk et al. 2003). Another type of information is provided by exemplars, that is, ordinary people affected by the general problem or issue (Zillmann et al. 1996), sometimes also called case sources or case reports (e.g. Ostfeld and Mutz 2014). For instance, a story on increasing unemployment that combines statistical evidence for the upward trend in unemployment numbers with a person who has recently been dismissed from her job. This combination gives people information on the scope of the unemployment problem but also a more vivid and concrete impression of the personal consequences for the people behind the numbers in the statistics.

Thus, exemplars serve as a human face on the abstract problems and issues. Their personal accounts are supposed to ‘rope people in’ and provide ‘an anecdotal hook’ (Hinnant et al. 2013: 544) and make news stories more comprehensible, vivid and appealing (e.g. Skovsgaard and Hopmann 2020; Zillmann et al. 1996).

While the more abstract information provided by expert sources speaks to a rational, analytical processing of information, the vivid and concrete accounts of exemplars speak more to an intuitive and emotional processing of information (Wahl-Jørgensen 2019). As both expert sources and exemplars are increasingly included in the news (Albæk et al. 2003; De Swert et al. 2008), it is important to understand more about how people process news stories in which the two types of sources are presented alongside one another.

On the one hand, expert sources gain high credibility based on their expertise (Hovland et al. 1953), and the credibility of a source has consistently been shown to increase the recall and persuasiveness of the information provided (Pornpitakpan 2004). On the other hand, the vivid, concrete and authentic accounts of exemplars tend to evoke emotions in the audience (e.g. Aarøe 2011; Andersen et al. 2017). In turn, content that triggers emotional responses focuses attention on this information, which in turn becomes more immediately available in people’s memory and more easily retrievable and, thus, carries more weight (e.g. Brosius 1993; Newhagen and Reeves 1992; Newhagen 1998; Potter 2017; Kahneman and Tversky 1973). If the information provided by exemplars and experts is aligned, the two different means of

processing information do not lead to contradicting interpretations, but if conflicting information is presented by the two types of sources, it is likely to have implications for the interpretation of the issue and the sources at hand.

Against this backdrop, this study explores how people perceive expert sources and the message of the news story when an expert source and an exemplar give contradictory information within the same news story. It also explores whether these perceptions can be connected to their emotional response. We draw on the case of the HPV vaccine programme preventing cervical cancer among Danish women. The programme was challenged by young women experiencing disabling symptoms, which they ascribed to the HPV vaccine. Some of these women were included in news stories and pitted against experts who stated that, based on scientific evidence, the vaccine was harmless. Thus, this case is well suited for studying the implications of conflicting information from expert and exemplar sources in a news story.

We rely on a study originally conducted by the research division at the national public service broadcaster The Danish Broadcasting Corporation (DR) where the corresponding author of this article was employed at the time and was in charge of data collection. In cooperation with the news division, the research division created an alternative version of a news story to explore how people perceived and responded to a news story with an exemplar presented alongside expert sources compared to a news story with only expert sources. Participants were asked both open-ended and close-ended questions, and their arousal levels were measured through electrodermal activity (EDA). This method draws on the fact that when human beings get aroused, their sweat levels increase, and these changes can be measured. Relying on these secondary data allows us to provide some initial insights into how people respond when the information from an exemplar contradicts the information provided by an expert source in the same news story.

However, the design also comes with some limitations that call for caution in the interpretation of the results, which we will discuss extensively in the discussion section at the end of this article. Thus, we consider this an exploratory study that will provide indications of how people react emotionally and how they perceive expert sources and the message of a news story when an expert source and an exemplar give contradictory information. Based on these results, we also propose how journalists can consider introducing practices that can mitigate the potential effects of including emotional exemplars in news stories.

Exemplars and experts in news stories

News stories on societal issues often include two types of information. One type is base rate information that presents evidence on a societal problem or issue through statistics or other general evidence. This type of information is regularly provided or interpreted by expert sources (Albæk et al. 2003). The other type is individual and personal accounts on how ordinary people are affected by the general problem covered in the news story. The inclusion of such exemplars illustrates the general problem and makes it more vivid and concrete (Zillmann et al. 1996).

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Studies have repeatedly demonstrated that vivid information from exemplars tends to trump more pallid base rate information when people form perceptions or attitudes (e.g. Brosius and Bathelt 1994; Gibson and Zillmann 1994; Zillmann and Brosius 2000). For instance, a study that presented people with a story about farmers' economic hardship provided people with either a one-sided or representative distribution of exemplars, that is, accounts of specific farmers' economic situation, next to base rate information. People presented with one-sided exemplars overestimated the extent of farmers running economic deficits in the face of more accurate base rate information (Zillmann et al. 1996). In a study on exemplars and attitude formation, there was a significant impact on attitudes when either a deserving or an underserving exemplar was added to identical base rate information (Hopmann et al. 2017).

However, it is unclear how the audience processes the information and forms perceptions when the base rate information in a news story is provided by expert sources and particularly when the expert source is pitted against an exemplar that gives conflicting information.

On the one hand, experts are often assessed as credible sources. First, they have the expertise to make valid statements within their particular area of expertise, and second, they are most often also judged to have no intentions but to give as valid assertions as possible. Both expertise and trustworthiness generate source credibility (Hovland et al. 1953). In turn, the credibility of a source has consistently been shown to increase the recall and persuasiveness of the information provided by the source (Pornpitakpan 2004). That would lead to the expectation that the statements from the expert source will dominate when people form their perceptions and attitudes on the issue covered.

On the other hand, exemplars are also often considered trustworthy because they speak of their own actual experience and most often with no immediate aim to persuade anyone (Lefevre et al. 2012). Their accounts are more vivid and concrete than the often quite abstract evidence presented by expert sources. Due to their vividness and concreteness, such exemplar accounts are more likely to evoke an emotional response in the audience, and arousal is a strong predictor of attention, which means that people tend to focus their attention on the content that triggers emotional arousal (Potter 2017). In turn, the focused attention makes the information more immediately available in people's memory and more easily retrievable compared to content that does not produce an emotional response (e.g. Potter 2017; Strongman 1982; Strongman and Russel 1986).

Studies also show that emotional content in a news story inhibits recall of information preceding the emotional information – for instance, base rate information from experts (e.g. Newhagen and Reeves 1992; Lang et al. 1996). The focused attention on – and easier retrieval of – information that triggers an emotional response is a likely part of the explanation why exemplar information tends to dominate base rate information when people process a news story.

For instance, Aarøe (2011) demonstrated how episodic framing (i.e. inclusion of exemplars) triggers emotional responses and significantly affects attitude formation

on a restrictive immigration policy. Andersen et al. (2017) found that empathy mediated the effect of an exemplar on intentions to engage in politics. These studies demonstrate that the emotions triggered by exemplars play an important role when exemplar information dominates base rate information.

This is likely to work in combination with people's tendency to draw conclusions about how widespread and severe a societal problem is based on information on exemplars, also known as the representativeness heuristics (Kahneman and Tversky 1973). When an exemplar triggers an emotional response, people pay more attention to the information provided by the exemplar. In turn, the increased attention makes the exemplar information more available in people's minds than more reliable and general base rate information when they draw conclusions about the extent and severity of the problem at hand. In combination, the emotional response to exemplars and the representativeness heuristics would lead us to expect that when people form their perceptions and opinions, they will tend to pay attention to and rely on exemplar information over the base rate information provided by the expert source.

Thus, there is evidence to support that people when forming perceptions will rely on expert sources, but there is also evidence to support that people will rely on exemplars. When the two types of sources provide conflicting information, people are likely to experience a cognitive dissonance that they will try to eliminate. That can be done by reducing the importance of one of the conflicting pieces of information (Festinger 1957), and in the case of sources, it can be done by reducing the credibility of one or the other source. Hence, it is possible that the exemplar information will dominate the perception of the issue, and the expert source will be deemed not very credible. It is also possible that base rate information provided by an expert source will dominate the perception of the issue and that the exemplar will be deemed less credible or just not a good representative of the general problem. Against this backdrop, we take a first step in answering the following research question:

RQ: How does conflicting information provided by an expert source and an exemplar source affect (1) the emotional response, (2) the perceptions of the message of the news story, (3) the perceptions of the sources among the audience?

Materials and methods

The exploratory empirical study was originally conducted as an internal study at the DR, the national public service broadcaster in Denmark. Following an internal debate in the news division on the use of exemplars in news stories, the division's 'DR Audience Research' conducted the study to explore the emotional responses to a news story when an exemplar was included or excluded. The study was set up in collaboration between the news division and the corresponding author of this article who at the time was working at DR Audience Research. The aim was to generate evidence that would provide feedback for the internal debate in the news division on including exemplars in news stories.

A total of 38 participants were recruited to take part in the exploratory study in DR's lab facilities in Copenhagen (due to technical issues, data from four participants were excluded from the final data set, leaving a data set of 34 participants, with eighteen males/sixteen females, 24–59 years old, $M = 47.9$, $SD = 9.9$). The participants were recruited among the approximately 10,000 Danes in the audience research internet panel of DR. The participants cover the major segments of Danish television viewers and were heterogenous in terms of gender, age, educational level and prior appreciation of television programmes from DR.

The case and the news stories

To explore the emotional responses to an exemplar in a news story and the implications for perceptions of the main message of the news story and the sources, we draw on the case of the HPV vaccination programme initiated to prevent cervical cancer among Danish women. The programme had a high uptake with more than 90 per cent of girls born between 1998 and 2000 with at least one HPV vaccination. From 2013, the vaccination programme was challenged by an increasing number of reported suspected side effects of the vaccine.

The news media started covering the issue and included as exemplars young girls with a wide range of disabling symptoms that they linked to HPV vaccination. However, no epidemiological study had (or still has) been able to substantiate an increased risk of the alleged severe side effects of HPV vaccination (Sundhedsstyrelsen 2019; Suppli et al. 2018). The heated debate culminated after a television documentary on the issue was broadcast on the Danish national television channel TV 2 in March 2015. The documentary included several girls as exemplars, and the girls told their stories of severe symptoms that were linked to the HPV vaccine. The media attention was followed by a dramatic decline in HPV vaccination uptake and an increased rate of reported suspected adverse events (Suppli et al. 2018).

The news item used in this study was broadcast by the DR in the daily news, *TV-Avisen at DR1*, at 21.30 on 4 November 2015. The news story focuses on a new study from the European Medicines Agency that cleared the HPV vaccine of charges for severe side effects. The sources in the news story are an emotional exemplar and two expert sources – a director from the Danish Board of Health and a researcher. The emotional exemplar is a young girl, who believes she has been suffering from severe side effects since she got the HPV vaccine. The two expert sources present conflicting information, since one of them is referring to studies claiming the HPV vaccine to be harmless, while the other expert source questions the quality of those studies (see Table 1 for an overview of the news story).

To create a benchmark for gauging the emotional responses, a new version of the news story was produced for this study. A group of journalists from DR News, led by the head of *TV-Avisen*, Johan Engbo, removed the exemplar from the story to explore the differences between having or not having an exemplar in the news story. The exemplar was replaced by an extra expert source supporting the conclusion that the HPV vaccine is harmless. In short, one version is without an exemplar and includes

When	Who	Where	What	How
00:00–00:25	Host	Studio	Introduction to the problem by the host Kåre Quist	Title of news story: 'Vaccine dismissed' Host in the centre of the frame
00:26–1:12	Exemplar	The home of Natasja	Natasja Brix Larsen's story is told by health correspondent. She believes that she is suffering from side effects from having the HPV vaccine.	Graphics of statistics and pictures of injection A mix of voice-over, pictures of Natasja lying on her couch and in the kitchen taking pills and interview bits with Natasja, describing her pain.
1:13–1:45	Expert voice-over	The courtyard of the Danish Board of Health; doctor's clinic	Director of the Danish Board of Health, Søren Brostrøm, states that the suspicion is disqualified; the HPV vaccine is documented to be harmless. Therefore, he guarantees that the Danish population can safely vaccinate 12-year-old girls.	Expert interview in a dark setting Intermezzo with voice-over of health correspondent accompanied by close-ups of the unpacking of a needle and a girl getting an injection in the upper arm
1:46–1:57	Exemplar	The home of Natasja	Natasja Brix Larsen states that if it is not the vaccine causing trouble, then what?	Expert interview continues Voice-over by health correspondent and interview
1:58–2:18	Expert	Frederiksberg Hospital	Researcher Jesper Mehlsen from the regional HPV centre at Frederiksberg Hospital states that he doubts the quality of the European Medicines Agency and suggests a one-year break from HPV vaccination of young girls.	Montage with pictures of Jesper Mehlsen from a hospital clinic and interview with Jesper Mehlsen
2:19–2:30	Exemplar	The home of Natasja	Natasja Brix Larsen explains that she would have never accepted the HPV vaccine if she had known about the consequences	Interview with Natasja Brix Larsen where she starts crying in the very end

Table 1: Rundown of elements: News story with exemplar.

three expert sources – two that clear the HPV vaccine of severe side effects and one who is sceptical and wants to put the vaccine programme on hold. The other version includes an exemplar who provides a personal account that challenges the story's main message coming from the main expert source that the HPV vaccine is cleared of severe side effects by new scientific evidence. Also, in that version is the sceptical expert source who wants to put the vaccine programme on hold (see Tables 1 and 2 for an overview of the two news stories).

These specific changes were made because editing out the exemplar without adding other information would mean that the news story would not meet the journalistic standards necessary for being aired. As the purpose of the study was to provide feedback to the news journalists in DR on how to construct news stories, the ecological validity – that is, the realism of both news stories – was a key factor to convince them of the utility of the results. The disadvantage is that the inclusion/exclusion of the exemplar is not the single difference between the two versions of the news story, because one version includes three experts and the other only two. Furthermore, the experts included in both versions disagree on how confident we should be in the scientific evidence that clears the HPV vaccine of severe side effects, which along with the effect of including an exemplar might also affect viewers' perceptions of the sources and the main message of the story. However, the two versions still invite different responses from the audience based on the presence or non-presence of an exemplar.

Procedure

Data was collected from 8 to 10 December 2015 in the lab at DR. After being introduced to the procedures, participants were told that they would watch two versions of a news story (the exemplar and non-exemplar versions, and the order of the two versions was randomized to counterbalance carryover effects, i.e., answers to questions after having watched the second version of the news story can be affected by also having watched the first version of the news story). The purpose of the study was not revealed because that would be likely to affect participants' responses to the news stories. After having watched each of the news stories, participants answered a questionnaire, and at the end of the full procedure, they were debriefed and informed about the purpose of the study before leaving the lab. During data collection, the DR representatives left the room to minimize disturbance, but respondents were observed via cameras and were instructed to raise their hand if in need of help. Notes with timestamps were taken if any behaviour of a respondent could influence measurements, and these notes were then checked against the data output.

Measures and analytic approach

Participants were asked both open-ended and close-ended questions in a questionnaire to gauge their conscious emotional experience of the news stories. The self-report was supplemented by an EDA measurement measuring participants' arousal

When	Who	Where	What	How
00:00–00:25	Host	Studio	An introduction to the problem by the host Kåre Quist	Title of news story: 'Vaccine dismissed' Host in the centre of the frame
00:26–00:37	Voice-over reportage Expert	Health clinic The courtyard of the Danish Board of Health	Voice-over by health correspondent stating that a new report clears the HPV vaccine of charges of side effects Director of the Danish Board of Health, Søren Brostrøm, states that the suspicion is disqualified; the HPV vaccine is documented to be harmless. Therefore, he guarantees that the Danish population can safely vaccinate 12-year-old girls.	Graphics of statistics and pictures of injection Pictures of a girl getting vaccinated in a health clinic, injection in arm
00:38–00:47	Expert	Health clinic	Voice-over by health correspondent stating that a new report clears the HPV vaccine of charges of side effects.	Expert interview in a dark setting
00:48–01:00	Voice-over and reportage Expert	Health clinic	Voice-over by health correspondent stating that a new report clears the HPV vaccine of charges of side effects.	Pictures of the unpacking of needles
01:01–1:42	Expert	The Diagnostic Centre	Ulrich Fredberg, chief physician of The Diagnostic Centre, states that the conclusion from the European Medicines Agency is valid.	Close-up of Ulrik Fredberg, montage picture of a girl on a couch, pictures of a bright hallway where Ulrich Fredberg is being interviewed by a journalist.
1:43–2:10	Expert voice-over	Frederiksberg Hospital; doctor's clinic	Researcher Jesper Mehlsen from the regional HPV centre at Frederiksberg Hospital states that he doubts the quality of the European Medicines Agency and suggests a one-year break from HPV vaccination of young girls.	Montage with pictures of Jesper Mehlsen from a hospital clinic and interview with Jesper Mehlsen Intermezzo with voice-over of health correspondent accompanied by close-ups of the unpacking of a needle and a girl getting an injection in the upper arm
2:11–2:24	Expert	The courtyard of the Danish Board of Health	Director of the Ministry of Health, Søren Brostrøm, underlines the conclusion of the research done by the European Medicines Agency and advises young girls to get an HPV vaccine.	Expert interview continues Interview and close-up of director end with a close-up picture of a dripping needle.

Table 2: Rundown of the elements: News story without exemplar.

levels while watching the news stories. The open-ended question encouraged participants to write longer, richer and more narratively inspired descriptions of their own experience. Participants were asked: ‘What do you remember most clearly from the news story? Please answer as detailed as possible, so we know what you remember and why.’ This question taps into participants’ perceptions of the news stories and the different elements of news stories and, in some cases, also their conscious emotional responses to the news stories.

In close-ended questions, participants were asked: ‘Describe the emotions that you had when you watched the news story, not the emotions displayed by the people in the news story but the emotions you experienced’. They could indicate as many discrete emotions as they wanted from a response scale with the following emotions: joy, grief, anger, fear, disgust, shame, embarrassment, guilt, pride, disappointment, jealousy, admiration, gratitude, schadenfreude, pity. This response scale has been developed by DR Audience Research to catch emotions often experienced in relation to watching television. A binary variable was constructed for each discrete emotion indicating whether a participant had experienced that particular emotion or not.

To avoid confusing information from the two versions of the news story in the self-reported measures, participants answered questions about their emotional response and what they remembered from the news story immediately after watching each of the two news stories. A qualitative data analysis of the answers from the open-ended question consisted of three steps. First, the qualitative data was transcribed, then the researchers read the interviews several times to familiarize with the data. The second step was identifying and coding broad ideas, words or phrases mentioned in the data set. The result of the coding process was a range of categories and an idea of their frequency. Third, the identification of themes and the most common responses to questions was displayed, and this step led to identifying patterns that can answer the research question (Bjørner 2015: 101).

Participants’ instant emotional arousal was measured through EDA while they watched the news stories, which enabled us to connect elements of the news story to varying arousal levels. Data was recorded at DR in a lab with three workstations. A VarioLAB-Mini device was used to measure skin conductivity responses, and respondents were fitted with standard disposable electrodes connected to a signal amplifier and to the VarioLAB-Mini device. Data collection was managed with the use of Biometric Software Suite and Tobii Studio.

Arousal is an expression of emotional intensity and activation. Arousal is bivalent, which means that both positive and negative valence can cause high and low arousal. Both valence and arousal are recognized and well-proven measures of emotion both within a neuroscience research tradition and in the field of reception research (Corcoran 1965; Revelle and Loftus 1992; Wirth and Schramm 2005).

Initially, all data sets were visually inspected, and data sets that did not show the distinct peak profiles of EDA measurements were discarded, since the data is likely invalid due to a noisy and unreliable reading. EDA readings can be divided into tonic (slow changes) and phasic (rapid) components (see Figner and Murphy 2011),

and since our interest is in whether particular elements in the news story at particular times contribute to arousal, the phasic component (SCR) of the data is relevant. In order to separate the phasic and tonic components, the Ledalab plugin for MATLAB authored by Benedek and Kaernbach (2010) was used. The Ledalab plugin module offers several data manipulation procedures explicitly designed to handle EDA data series, and we used the continuous decomposition analysis function to separate the tonic and phasic components of our EDA measurements.

Skin conductance response (SCR) readings can vary a lot from respondent to respondent due to the individual body's ability to conduct current and the individual level of sweat. Thus, the phasic measurements were normalized to vary between 0 and 1, that is, a so-called min-max normalization (Larose and Larose 2014). The aim of this normalization is to account for between-subject variations in baseline and amplitude (Latulipe et al. 2011). Using the data set of phasic responses, the peaks were identified and counted in every time series. The threshold for whether a peak would be counted was set to a value equal to or above 2 standard deviations for the individual respondent. The distribution of such peaks gives an indication of which elements in the news stories the participants responded to.

Results

In line with our research questions, we report the results of our analysis in the following sections: first, the emotional responses; second, the perceptions of the message of the news story; and third, the perceptions of the sources. There will inevitably be certain overlaps between the results – for instance, when people describe their emotional response to specific sources, they also touch upon their perception of these sources. However, the sections still structure the results and provide a clearer overview of the findings.

Emotional response

To explore the impact of including an exemplar to illustrate the potential side effects of the HPV vaccine on the emotional response of the audience, we asked both close-ended and open-ended questions. In the close-ended questions, participants were more likely to state that they experienced disappointment, anger, pity and fear after they watched the news story with the exemplar, than when they watched the news story without the exemplar. This supports the notion that the news story with an exemplar activates an (predominately negative and sympathetic) emotional response in the audience (see Figure 1).

The theme of a predominately negative and sympathetic emotional response in the audience also appears in the open-ended questions, especially in the answers given after watching the news story with the exemplar included. This theme is central in the data set, since the exemplar, Natasja and her description of her suffering leave a big impression on the respondents, and many of them specifically point to the interview where she starts crying.

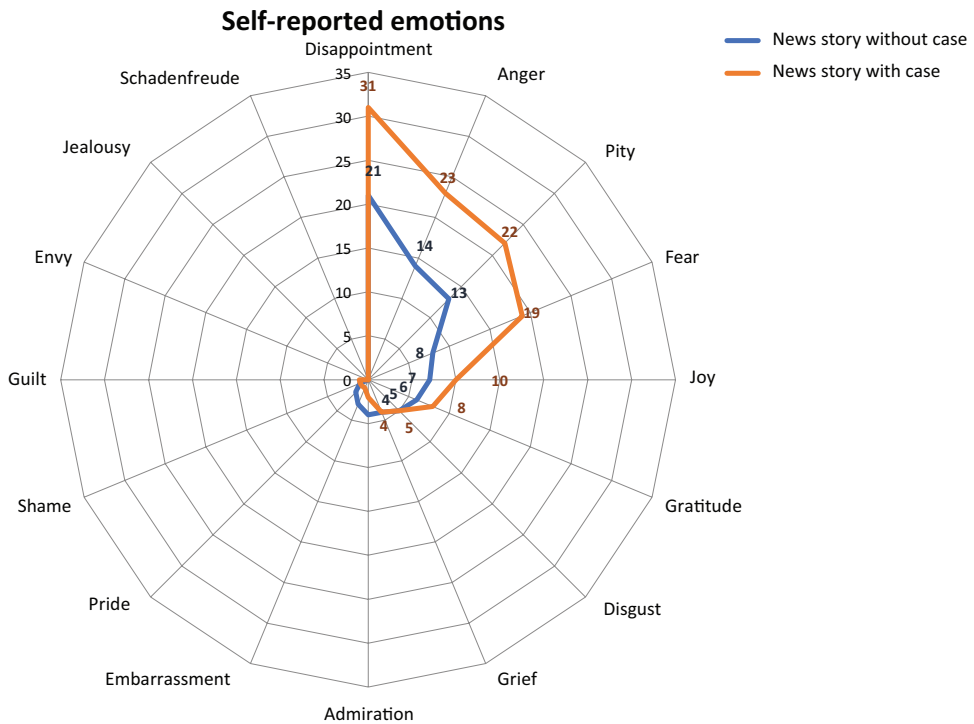


Figure 1: Spider web illustrating how respondents chose to describe the emotions they experience while watching the news stories on HPV vaccine.

It is particularly touching towards the end when she starts crying. I felt sorry for her.

(News story with an exemplar)

The emotional language echoes that of many of the other respondents mentioning the girl, here stated by two other participants.

I most clearly remember that the girl was close to crying when they asked her if she would have accepted the vaccination today. You are touched because she is very much affected by her illness, and before the vaccine, she was perfectly healthy.

(News story with an exemplar)

I most clearly remember that the girl's neck was red – she was so nervous and sad. It gave me a feeling of tenderness towards her.

(News story with an exemplar)

It is clear from the answers that when an exemplar is included in the news story, participants are much more inclined to focus on and express their sympathy and pity for the ones suffering from what might be the side effects of the HPV vaccine. The fact that the exemplar puts a face on the group of suffering girls makes participants focus more on these 'victims' and express an emotional engagement with them. Thus, the themes in the interview data indicate that when the exemplar is included, she evokes an emotional response and attracts attention, particularly when the exemplar herself acts emotionally. This also puts Natasja at the forefront of what respondents best remember from the news story. Compared to the story without the exemplar, the inclusion of an exemplar seems to reduce the attention devoted to other sources in the news story. This is in line with what could be expected based on earlier studies of how emotional content affected the recollection of preceding content (e.g. Lang et al. 1996; Newhagen and Reeves 1992).

In the data set collected after respondents watched the news story without an exemplar, the theme of negative and sympathetic emotional response is not dominant. It does appear, but when it does, it is typically expressed in a rather neutral language. One participant writes:

[I feel] pity for the girls who have experienced discomfort following the vaccination.

(News story without an exemplar)

Exceptions are also present. One participant is more upset and uses a stronger language:

My anger against politicians who just do what the Danish Health Authority tells them. It is 12-year-old girls. Bloody hell.

(News story without an exemplar)

Turning to the EDA measures, a comparison of respondents' emotional activation (number of peaks) between the two news stories (Figure 2) shows a rather stable level of arousal with some fluctuations. There is a tendency towards larger increases in the number of arousal peaks when the exemplar appears on the screen than at the same point in the news story without an exemplar (26, 106, 139 seconds into the news story). However, the increase in arousal is especially clear towards the end of the news story when the exemplar starts crying and states that she would have never accepted the vaccination had she known the side effects.

Even though there is an increase in arousal in the news story without exemplar triggered by a close-up of a dripping needle, the increase is not nearly as strong as the one triggered by the crying exemplar. Thus, the increase in arousal among the participants is triggered when the girl starts crying rather than when she more calmly describes her pain. This dovetails with the answers to the open-ended questions where the crying girl was frequently mentioned.

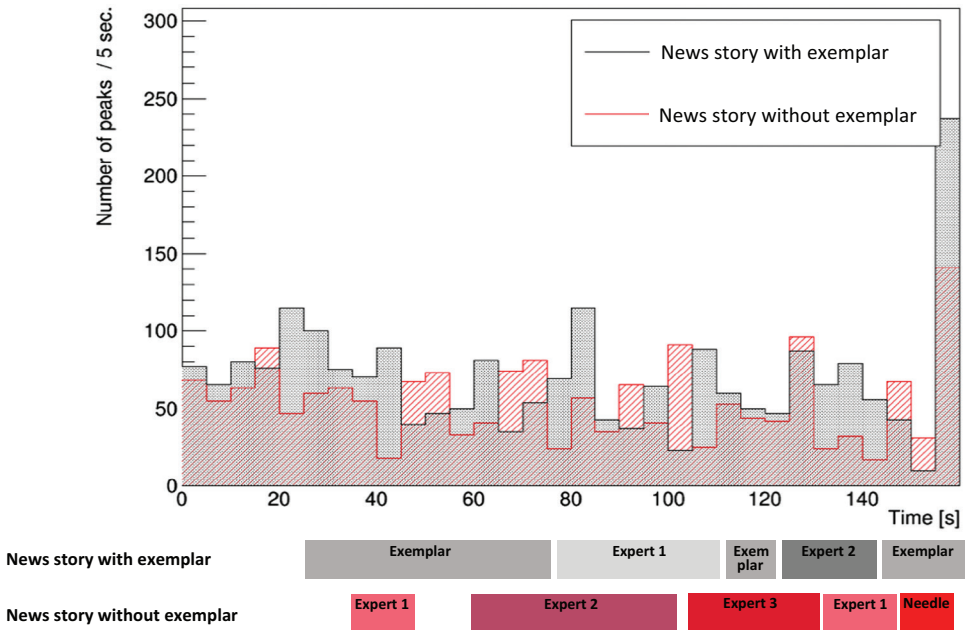


Figure 2: SCR measurements, comparison between news story with emotional exemplar and without.

Perceptions of the message of the news story

Next, we explored whether the inclusion of an exemplar in the news story and the emotional response it generated had implications for the perception of the message of the story and the perception of expert sources. The angle – and thus the main message – of the news story is that new scientific evidence clears the HPV vaccine of causing severe side effects as no connection between the two has been found. In their answers, a dominating theme was that participants doubt the main message of the news story, that is, the HPV vaccine was harmless. For some, this doubt seemed to be rooted in the exemplar and her suffering:

My thoughts are whether the vaccine can have side effects that lead to illness and if it can be at fault for N's [the exemplar's] problems.
(News story with an exemplar)

Based on a concern for the girls, two other participants expressed similar sceptical attitudes towards acquitting the vaccination of causing severe side effects. The first respondent expressed a sceptical attitude very emotionally, while the second used a less emotional language:

The girl is very much affected. [...] It touches me deeply. My daughters are vaccinated, and I fear what side effects they may come to experience in the long term.
(News story with an exemplar)

It is thought-provoking that the side effects are not taken seriously. Now that you know they are there. The vaccine saves lives, there is no doubt, but poor girls who gets severe side effects.

(News story with an exemplar)

As expected, the emotional response to exemplars and the representativeness heuristics in combination led participants to pay attention to and rely on exemplar information over the base rate information provided by the expert source.

However, the sceptical attitudes towards the main message of the news story were also widespread among the answers given when participants watched the news story without exemplars. Some of them also in blunt language:

[I]t is unbelievable that you clear a vaccine where side effects have been observed. That the side effects are not taken seriously. No doubt that the vaccine saves lives, but one should also address the side effects that are there. When not even the experts agree on effects and results, where does it leave us as consumers.

(News story without an exemplar)

The health of young girls is being gambled with. There is some substance missing in the studies that are referred to in the news story. It is hard to find a standpoint on what is right and what is wrong.

(News story without an exemplar)

Thus, it appears that when quite strong contradictory information is present in the news story, many people will be sceptical towards the main message of the story. When an exemplar is included in the story, the sceptical attitudes seem to be based more on immediate (and emotional) concern for the girls suffering from the side effects. In other words, people refer to the exemplar, or girls, like her. When no exemplar is included, the sceptical attitudes seems to be based more on the disagreement between experts.

It is, however, also possible to find references to expert disagreement when people have watched the news story with the exemplar, and reversely it is also possible to find references to the suffering girls in people's answers after watching the news story without the exemplar. Thus, the results indicate that information contradicting the main message of the story, regardless of whether it is provided by an exemplar or an expert, seems to lead people to be somewhat sceptical of the main message of the news story.

Perceptions of the sources

Another prominent theme is the perception of particularly the expert source who acquits the HPV vaccine of severe side effects; his credibility is contested by participants because they find him unconvincing:

I remember [...] that Søren from the National Board of Health does not perform very well in the dark environment, and he is not very much the patient's man. It's mostly about being right and hitting it hard.

(News story with an exemplar)

Patients are at the centre of the news story and it has a strong effect. However, I perceive her [the exemplar], to be standing very alone and that the authority appears 'hostile'. According to the patient, side effects are severe, and they affect the general quality of life.

(News story with an exemplar)

However, this theme is also present in data from participants watching the story without an exemplar.

I generally think that it should be easy to find out if there are any side effects, and then I generally think that the National Board of Health presents itself very bureaucratically and does not show empathy for the girls who have these side effects.

(News story without an exemplar)

Thus, again it seems that the expert source providing the evidence for the angle and the main message of the story is questioned because the news story offers contradictory information through an exemplar or another expert source that disagrees. In that way, an exemplar that contradicts an expert might result in the audience perceiving the expert as less credible, but a disagreeing expert source might have a similar impact on the assessment. In other words, as expected, the participants experience cognitive dissonance (Festinger 1957) when the two types of sources provide conflicting information, and they try to eliminate this experience by reducing the importance of one of the conflicting pieces of information and, in this case, reducing the credibility of the expert source. Hence, the information from the exemplar dominates the perception of the issue, and the expert source is deemed less credible.

Discussion

This study adds to existing studies by exploring how people perceive expert sources and the message of the news story when an expert source and an exemplar give contradictory information within the same news story. It also explores whether these perceptions can be connected to their emotional response.

The results showed that self-reported discrete emotions – namely the feeling of disappointment, anger, pity and fear – were reported far more often after watching the news story with an exemplar than the news story without an exemplar. These results dovetail with the EDA measurement, which shows that the exemplar generated increased emotional activation (arousal peaks) in the participants compared to

the news story without an exemplar. This was particularly true in the part where the exemplar made an emotional statement and started to cry because of her hopeless situation. Thus, it seems that emotionality of the exemplar drives arousal in the audience.

The results of this exploratory study make sense in the light that the maximum emotional peak and the end emotional peak dominate when a viewer is asked to register and describe an emotional experience after it happened (Kahneman 1999). In this case, the two peaks (maximum peak and end peak) coincide and can be assumed to make the emotional response even more pervasive when it is evaluated after watching the news story.

The answers to the open-ended question supported this interpretation. When an exemplar puts a face on the group of suffering girls, it made the audience focus more on these victims and express emotional concern. The exemplar appeared to serve as an attention commander in the news story (Lefevre et al. 2012) and – in line with earlier studies of how emotional content inhibits recollection of preceding content (e.g. Lang et al. 1996; Newhagen and Reeves 1992) – drew focus away from expert statements also included in the news story.

The inclusion of the exemplar also appeared to generate sceptical attitudes towards contradicting information in the news story. In the data collected after participants watched the news story with an exemplar, a theme of expressed compassion and sympathy with the girl appeared. The participants were – with reference to these emotions towards the exemplar – sceptical towards the main message of the news story and towards the main expert source who commented on the general evidence that acquitted the HPV vaccine of causing severe side effects.

However, it is important to note that similar sceptical attitudes towards the main message of the story and the main expert source were present when participants watched the news story without an exemplar. In this case, the sceptical attitudes were in some instances based on the contradicting information coming from an expert disagreeing with the main expert of the news story.

Thus, the results from this exploratory study give an indication of how an exemplar in a news story generates an emotional response that has potential ramifications for the attention paid to other information in the news story and how this information and its sources are perceived. When the audience based on an emotional response pays more attention to an exemplar and less attention to pallid base rate information often presented by expert sources, it is likely to form their perceptions and opinions on the issue presented. Especially conflicting information provided by an exemplar and an expert might lead people to discard the main message of the news story and the credibility of the expert, as was the case in the news story on the HPV vaccine being acquitted of causing severe side effects.

This study comes with some limitations that call for further research. First, we studied one specific case that had already generated quite some public debate on the potential side effects of the HPV vaccine. Some participants were likely to already have a firm attitude on the HPV vaccine and its potential side effects before watching

the news story in the study, which would reduce potential effects because their minds are made up in advance. In addition, we do not know if some study participants hold sceptical attitudes towards vaccines in general (i.e. support the minority anti-vax movement) that would lead them to a more positive assessment of the exemplar and a more sceptical attitude towards the expert from the health authorities.

Related to that, we studied one single news story on one topic with a quite emotional debate in which the exemplar provides information that contradicts the angle of the story and the statement of the main expert, and she does so very emotionally. Research on different cases and news stories on different topics with different exemplars will provide broader evidence of potential effects. Also, we studied reactions to television news stories that are linked to arousal due to moving images (e.g. Vettehen et al. 2008), which makes it a likely case for finding potential effects. Thus, further research could focus on other media types and modalities than television and moving images to explore generalizability.

Second, the study was set up as an internal study at the DR to provide feedback to journalists about the potential effects of including exemplars in news stories. A fast turnaround was crucial for the purpose of feeding evidence into an ongoing internal debate in the newsroom. And as people had to travel to DR's lab in Copenhagen, it was only possible to include a limited number of participants in the study. This led to the decision to have participants watch both news stories (with and without exemplar) instead of setting up the study as a between-subjects experimental design. Hence, we consider this study more exploratory in nature, but the way the study was set up is somewhat similar to a within-subjects experimental design, where each respondent receives more than one type of stimuli. In this case, all participants were presented with both news story with and that without the exemplar. This comes with a potential problem of carryover effects where the responses after watching the first news story influence the answers after watching the other.

Two steps were taken to minimize potential carryover effects. First, the design was counterbalanced so that the order of presentation of news stories changed between respondents. Second, participants were interviewed immediately after each of the two news stories to obtain their immediate reactions to the news story with and without an exemplar respectively, thus increasing the likelihood of a more detailed recollection of the elements of the news story. However, we can trace such carryover effects in the self-reported data. A few respondents who first watched a news story with an exemplar seemed to still refer to the exemplar after watching the news story without an exemplar. Carryover effects like these are important to consider, but in this case, they would mostly serve to reduce potential differences in the perceptions of the two news stories and lead to more conservative conclusions about these differences.

Third, in generating the stimulus material for this kind of study, there is a trade-off between, on the one hand, ecological validity, that is, the composition of news story closely matches the way news stories are usually composed, and, on the other hand, internal validity, that is, the manipulation of news story to vary exactly the

factor that is expected to drive effects in the audience (in this case the exemplar). Journalists from the news division were involved in editing a new version of the news story used for this study, and from a journalistic point of view, the news story without the exemplar would only have the quality to be aired if other elements were added (in this case the extra expert source and some reportage elements, which also means that the two news stories have almost the same duration – 2:30 vs. 2:24 minutes). The emphasis on ecological validity at the expense of internal validity was a necessary condition for the journalists in the news division to engage with the results of the study. Thus, one aim of future research on the emotional responses to exemplars and the effects on perceptions could be to increase internal validity by setting up a strict between-subjects experimental design eliminating the risk of carryover effects and with more control over the independent variable.

Still, this study on the implications of including an exemplar that contradicts information coming from an expert source provides insights to journalists who are faced with a dilemma when using exemplars in their daily practice. For many journalists, exemplars serve the purpose of catching attention and bringing complex issues closer to the life context of their audience by validating the relevance of issues. On the other hand, journalists face the risk of over-sensationalizing and hindering accurate understanding when including exemplars. Even though more research on the topic is needed, our results lead to the following advice for journalists:

1. Be aware of the dilemmas when choosing an emotional exemplar who contradicts both the statement from an expert source and the angle of the news story. This editorial choice is likely to have a consequence for the way viewers perceive the different sources in the news story and may create confusion.
2. The order of sources in a news story should be carefully considered, since the end emotion tends to be remembered better. To reach an optimal balance between sources in a news story, it is highly relevant to be aware of the effect of the end emotion on viewer memory.
3. When an emotional exemplar is included in a news story, consider notifying the expert source so she/he can acknowledge the issues and troubles presented by an exemplar. This may be a way of overcoming an audience's perception of an expert source appearing cruel and untrustworthy due to the audience's sympathy for the emotional exemplar. Furthermore, it is a way of avoiding the expert being delegitimized.
4. Create room for discussion of ethical guidelines as well as arguments for and against the use of a specific emotional exemplar. A willingness to discuss how emotional exemplars are used is important for journalists to permit themselves reflexivity and reach a balanced use of emotional exemplars.

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