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Abstract:

Stoutenborough *et al.* (2016) recently published an article in *Energy Research and Social Science* with data to show that use of the term ‘fracking’ versus ‘hydraulic fracturing’ matters little with regards to the level of concern elicited by this form of energy development. The authors conclude that word choice (or ‘framing’) of this form of unconventional fossil fuel development is ‘much ado about nothing’ and that ‘survey research into fracking need not overly worry about the choice of [word] strategy’ (p. 56). These inferences are problematic. First, despite the authors’ repeated claims that prior research has not explored differences in public attitudes on this issue when ‘fracking’ versus other language is used, prior research has examined this topic – via a very similar methodological approach – and generated opposite findings. One difference is that Stoutenborough *et al.* used ‘hydraulic fracturing’ as the alternative term, whereas the previous, similar study used ‘shale gas development’. I discuss why the different comparisons likely yielded divergent results. I further argue that the authors’ conclusions are unjustified and ill-advised based on the data from the two surveys in concert. Word choice does matter when discussing this issue; the word ‘fracking’ should be avoided.

The Problem:

In their article, 'Is "fracking" a new dirty word? The influence of word choice on public views toward natural gas attitudes,' Stoutenborough *et al.* (2016) detail the results of a split-halves experimental study embedded within a survey that they used to evaluate differences between attitudes about unconventional natural gas development based on whether the term 'fracking' or the phrase 'hydraulic fracturing' was used. They found no significant differences in concern for the use of this process due to the wording treatment. The authors interpret these findings to mean that 'there is unlikely any bias introduced through word choice' (p. 56). Whilst the data collection and analysis seem competently performed and appropriately executed, the conclusions are imprudent based on the data available.

The first, and perhaps most substantial, issue with the study in question is that the authors ignore previous research on the ways in which word choice could affect perceptions of unconventional hydrocarbon development. They state, 'it is unclear whether this word choice actually influences opinions or attitudes toward natural gas extraction' (p. 52) and 'thus far, extant research has yet to empirically test this expectation' (p. 53). Nevertheless, Evensen *et al.* (2014) and Clarke *et al.* (2015) both chronicle and analyse the results of a quite similar split-halves experimental study, embedded in a survey of a US national sample (N=1000), that explored differences between attitudes towards energy extraction when 'fracking' versus 'shale gas development' were used. Stoutenborough and colleagues submitted their article for review in February 2016, well over a year after one of the other studies had been published. In addition to this substantial oversight, aspects of their reported history of the word 'fracking' are simply false (e.g., the authors claim that environmental groups modified the phrase hydraulic fracturing to create 'fracking', when actually this latter

term was first used in the *Oil and Gas Journal*, an industry publication, as early as 1953; see Evensen *et al.* [2014]).

Despite the oversights and inaccuracies, the question remains how these two pieces of research, both competently designed and executed, achieved such different results. Whilst Stoutenborough and colleagues found no significant differences, Clarke *et al.* (2015) show that people in the ‘shale gas development’ treatment were significantly more likely to associate benefits with development and to support development than people in the ‘fracking’ treatment. The two studies’ findings might initially seem completely at odds; nevertheless, the real difference is in the choice of wording. Stoutenborough *et al.* (2016) compared ‘hydraulic fracturing’ to ‘fracking’, whilst Evensen *et al.* (2014) and Clarke *et al.* (2015) used ‘shale gas development’ as the comparison. In our original article on this topic (Evensen *et al.* 2014), my colleagues and I discuss in detail the challenges of using any term or phrase to describe the full range of processes and outcomes associated with shale gas/oil exploration, extraction, processing, transport, and development via hydraulic fracturing. In what follows, I am not arguing for using one phrase over another, but merely pointing out that different options each have drawbacks, that none is a perfect solution, and that many options for replacing ‘fracking’ exist.

It might seem intuitive that ‘shale gas development’ elicits more positive responses than ‘fracking’ due to inclusion of the generally positive word ‘development’ (see Evensen *et al.* 2014). Nonetheless, a limitation of ‘hydraulic fracturing’ is that it describes a single stage in a large and complex set of transformations that attend unconventional oil and gas development employing this technique. Whilst ‘fracking’ may have *originally* been used to refer to hydraulic fracturing, that is frequently not the case in public discourse anymore. In mass media and even research on this topic, ‘fracking’ can often refer to a wider set of processes and transformations associated with the various stages of siting, developing,

extracting, processing, and transmitting unconventional natural gas or oil (Evensen *et al.* 2014).

A related problem is that hydraulic fracturing does not relate to the impacts associated with unconventional natural gas about which people really care. For example, one could argue that hydraulic fracturing has never led to water contamination (e.g., the contamination was due to bad cement casing, not the fracturing); yet, at the same time, the fact that shale gas development has occurred in some areas has decidedly caused water contamination (see Evensen *et al.* [2014] for a full discussion on this point). This difference means that ‘hydraulic fracturing’ and ‘fracking’ are both potentially confusing terms in that some members of the public may associate them with impacts that were technically caused by a component of the development process other than the (rather limited) hydraulic fracturing itself.

The confusion and technicality surrounding the phrase ‘hydraulic fracturing’ might be one reason that Stoutenborough and colleagues report that significantly fewer people in their samples had heard of ‘hydraulic fracturing’ compared with ‘fracking’. Again, in the previous survey, the opposite was found – when asked the extent to which they supported or opposed ‘shale gas development’ or ‘fracking’, 52% of respondents answered ‘don’t know’ for ‘fracking’, but only 36% selected this option for ‘shale gas development’.

A final piece of data that sheds doubt on Stoutenborough and colleagues’ claims of no bias to the word ‘fracking’ comes from qualitative data also gathered in the previous survey (respondents were asked to simply list the first thing that came to mind when they hear the word ‘fracking’ or the words ‘shale gas development’). My colleagues and I observed the following from this data (Evensen *et al.* 2014, p. 134):

Our surveys offer reason to believe that at least some members of the public attribute vulgar, obscene, or lewd representations to “fracking”...sixteen respondents expressed that they thought the word sounded bad or obscene, even though they did not know what it meant. For example, full responses to our open-ended question included the

following: ... “I don’t know, but it sounds bad to me”, “sounds dirty”, “sounds like a negative word”, “it sounds like something violent”... Additionally, ten responses linked “fracking” explicitly to *Battlestar Galactica* or to sexual acts, including the responses: “fuck” and “fucking”. Unsurprisingly, not one response included a comment about how “fracking” sounded positive.

Whilst the quantitative survey data can lead us to infer the extent to which people attribute negative connotations to the term ‘fracking’, this qualitative data directly and unequivocally demonstrates that some people form initial negative perceptions when presented with ‘fracking’.

Roads Forward:

Stoutenborough and colleagues present the results of a fine study that reveals an interesting finding – the wording of ‘fracking’ versus ‘hydraulic fracturing’ has little influence on attitudes towards this form of unconventional fossil fuel development. Nevertheless, their conclusions are incorrect and potentially dangerous. To claim that ‘fracking’ introduces no bias in discourse on this topic is simply wrong. To claim that the furore over what to call this form of development/extraction is ‘much ado about nothing’ is short-sighted in its assumption that ‘hydraulic fracturing’ is an appropriate alternative to ‘fracking’ (or, perhaps, the only viable alternative). Furthermore, in much of its use ‘fracking’ is a deceiving word, with one foot in sea and one on shore – it is by no means clear which processes or effects of the full suite of issues associated with development one is talking about when using the word ‘fracking’. This could lead to people unintentionally talking past each other, or to intentional obfuscation through disingenuous claims (see Evensen *et al.* 2014).

Stoutenborough and colleagues’ study contributes to the existing research on the linguistic ontology of ‘fracking’. A future study could clarify the differences in perceptions that these terms and phrases evoke by comparing ‘fracking’, ‘hydraulic fracturing’, ‘shale gas

development', and perhaps other key terms (e.g., coal seam gasification, coal bed methane development) in multiple random samples within the same experimental survey. Of course, the more terms included, the larger the overall survey sample would need to be. Independent of future research, however, I reiterate that Stoutenborough and colleagues' conclusions should be approached with extreme caution. Unless one is to believe that 'hydraulic fracturing' is the only likely or viable alternative that could be exchanged for 'fracking' in public discourse (including all forms of journalism and mass media), it would be prudent to remain apprehensive about the word 'fracking'. I repeat here the advice my colleagues and I offered in 2014 for ways to approach using the F-word:

1. *Replace*. If at all possible, do not use it. Instead, be as descriptive as possible.
2. *Refine*. If you feel you must use it, clarify your intended meaning for the word. Refer specifically to the parts of the industrial processes and the attendant impacts that you include (and do not include) in your usage.
3. *Recognize* alternative meanings, and know that some readers may misinterpret your usage of the term.

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