FROM JOY TO FEAR IN SCIENTIFIC TITLES

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Joy, trust, anger, fear... What if emotions played a role in the reach of a scientific article? What if, beyond its intrinsic qualities, the choice of words in a title could influence how it is received? And could artificial intelligence help to measure this? These are the key issues addressed in this article, which falls within the field of scientometrics, the discipline that measures the impact of research.

Is the use of certain emotions in an article's title associated with a difference in the number of citations it subsequently receives? This is the question posed by the authors of this article, and one to which they are able to provide an answer, thanks to ChatGPT: "yes, with some nuances". Indeed, this is not a systematic relationship, but rather a factor whose presence can statistically be linked to greater academic reception.

To determine this, the authors drew on Plutchik's theory, known as the "wheel of emotions". An emotion is not merely a feeling but a construct, based on several indicators: what people say, how they behave, and how others react. Emotions are therefore viewed as a complex and adaptive response. The theory distinguishes eight basic emotions (joy, trust, fear, surprise, sadness, disgust, anger, anticipation) organised into four pairs of opposites, such as joy and sadness, for example. These emotions can vary in intensity – serenity turning into joy and then into ecstasy, for example – but can also combine to form what Plutchik calls "dyads". Examples of such dyads include love (joy combined with trust) and remorse (sadness combined with disgust), amongst others.

Building on this theoretical framework, the authors extracted 15.836 articles classified as "marketing" from Scopus, covering the period from 2001 to 2015, a time when citations had accumulated without ceasing to grow. The choice of marketing is deliberate, as it is assumed that, within this discipline, researchers are more likely to use strategic terms to attract attention to their own publications.

They then used ChatGPT, whose capabilities in emotion analysis are recognised

in the literature as behaving well compared not only to those of other LLMs (Large Language Models, a type of artificial intelligence), but also to human analysis and the lexicon-based method. Artificial intelligence enabled the analysis of titles, even very short ones, in order to assign them a score for each emotion detected. In order to verify the reliability of the method and to counter any potential random bias associated with the use of AI, the authors chose to run their corpus through ChatGPT's analysis five times, using three different versions of the model. The results remained consistent, thereby statistically neutralizing the risk of random variation.

They were thus able to establish that certain basic emotions, such as joy, as well as certain dyads, these combinations of emotions, are consistently associated with better citation performance, whilst others, such as despair, are linked to lower visibility. They have thus brought to light an emotional factor that had previously been underestimated, but which is very real, and which helps us understand how scientific visibility and academic impact are constructed, within the specific context of the marketing studied here. Furthermore, the very structure of the emotional composition comes into play. Indeed, for certain specific dyads, such as love or guilt, there is an optimal configuration of emotional combinations that can "boost" citations. In the case of guilt, for example, having a high level of joy combined with a low level of fear in the title would, in principle, improve the visibility of the research. The authors therefore offer valuable insights here, moving beyond a simple link between emotion and visibility to examine these dyads, an analysis enabled by the power of ChatGPT.

In practical terms, this means that, for researchers, the choice of words used when drafting the title of a scientific article is of real importance and should not be underestimated. The emotions conveyed by these titles can provide an extra little boost to an article's visibility. This factor is contextual, non-causal and certainly modest, but becomes noteworthy when it can influence the likelihood of a paper being cited. Above all, it raises questions. It raises the question of visibility in academic communication, where the strategic use of emotions in the title could serve as a lever for disseminating results, and thus for impact. Emotion thus becomes a central issue: it enables a broader understanding of the affective structure of science and provides a clearer insight into bibliometric indicators.

> **This research therefore helps to develop a more nuanced and open understanding of how scientific visibility and impact are constructed, whilst contributing methodologically to the development of AI for text analysis. Science and emotions are no longer two opposing worlds: they respond to one another, discreetly, in the same quest for visibility.**