Researchers model the effects of honest and dishonest gossip

September 16 2022

Credit: Keira Burton from Pexels

A diverse range of fields are considered for Ig Nobel Prizes, including physics, entomology and peace. The annual Ig Nobel awards aim to recognize research that first makes people laugh, and then think.

Last year other TU/e scientists won an Ig Nobel Prize for modeling crowd movements. This year, as part of a large international research project, Leo Tiokhin and fellow team members have been awarded the Ig Nobel peace prize for their research modeling honest and dishonest gossip.

Gossip is often thought of negatively, but by sharing honest information about absent others, gossip can also help to promote cooperation and improve team functioning.

As a meta-scientist, TU/e researcher Leo Tiokhin—a postdoc at the department of Industrial Engineering & Innovation Sciences—is often drawn to projects where he sees the potential to generate bigger-picture insights and make connections between diverse fields. When he was invited to join the 2019 international meeting "The language of cooperation: reputation and honest signaling" held at the Lorentz center in Leiden, the Netherlands, Tiokhin saw an opportunity for just such a project.

"It was inspiring to work with this team of scientists. We had many productive discussions about how modeling could be used to study gossip," says Tiokhin. "My role in the team was supportive, aiding in how to conceptualize the problem, capture key components of gossip interactions, and clearly communicate the findings."

A diverse group of researchers attended the symposium, ranging from psychologists to biologists to mathematicians. "When I was invited, my interest was piqued because it was a thought-provoking theoretical problem and because it related to my expertise in communication. All of us had worked on information transmission in one way or another, and this formed a common bridge between team members" said Tiokhin.

Although the research was a team effort, Paul van Lange (Vrij

Universiteit Amsterdam, VU), Szabolcs Számadó (Hungarian Academy of Sciences Center of Excellence), and lead author Junhui Wu (Chinese Academy of Sciences, Beijing) were the ones mainly responsible for the model and scientific paper construction. It is interesting to note that the department of Social Sciences for Society at the VU conducts more gossip research.

Positive aspects of honest gossip

The researchers needed to simplify the complex construct of gossip to model it. To accomplish this, gossip was defined as a triangle: a situation where two people (the gossiper and recipient of gossip) discuss a third person who is not present. Additionally, the researchers allowed gossip to take on two forms: honest gossip and intentionally dishonest gossip.

"Of course, as with any model, we needed to make simplifications. For example, our model assumed that the gossiper always knew whether the target of the gossip was cooperative or uncooperative. It also assumed that the recipient of gossip would always trust gossip that they received. These assumptions were made for tractability, and they could certainly be modified in future extensions of our work."

Tiokhin continues: "There are many existing insights about honesty and dishonesty from research on the evolution of communication in biology. We drew on those insights to structure our models."

The researchers modeled four distinct types of social interactions between a recipient of gossip and the subject of the gossip. These four types of interactions included interactions that were mutually beneficial (a stag-hunt game; where the stag cannot be hunted individually, only together), beneficial for the receiver of gossip but costly for the target (a snowdrift game), beneficial for the subject but costly for the receiver of gossip (a helping game), and an interaction that was costly for both the

recipient and subject of gossip (a punishment game).

Across all four games, the results were surprisingly consistent. The researchers found that a simple 'matching rule' could be used by gossipers to decide whether to be honest or dishonest. In situations where there was a strong match between the effect of gossip and how much gossipers valued the recipient and target, gossipers should be honest. In contrast, in situations where there was a strong mismatch between the effect of gossip and how much gossipers valued the recipient and the target, gossipers should be dishonest.

How does this relate to gossip in real-life settings, such as in the workplace? In workplaces, when co-workers are strongly interdependent and rely on one another to achieve a shared goal, each person benefits from the success of the others. In these cases, gossip can be expected to be honest when honesty benefits the team, and dishonest when honesty would harm the team.

"On the other hand, there are other situations where people are not positively interdependent. For example, you may be competing with a co-worker for a prized promotion, where only one of you can get the job. In such situations, people are negatively interdependent: one person's failure means the others' success. Such situations can be expected to lead to dishonest gossip to harm co-workers, or honest gossip when the content of the gossip is already negative," explains Tiokhin.

Changing track

Tiokhin has a background in the social sciences, which may be surprising for a researcher at a technical university. "I started my Ph.D. in evolutionary anthropology being interested in the conditions in which people are honest or dishonest in their communication. However, the specific questions I was interested in were relatively narrow. I couldn't

help but notice the many bigger problems in science."

"At some point, I was spending so much of my time reading about problems in science and thinking about how to fix them, that I thought that I should either leave academia or switch to a field where I could improve the situation. The latter won out, and I switched to doing a Ph.D. in metascience (that is, research on research). I then continued along this path as a postdoc at TU/e, working with Daniel Lakens."

The Ig Nobel Prize for the team is something to be proud of. Although Tiokhin is happy to have been part of this team, his ambitions will soon take him away from academia, unfortunately. "You know, where I excel is in seeing the big picture and breaking down complex problems to make the problems concrete and manageable. I enjoy using data and models to generate practically useful insights. And I enjoy helping people around me as part of a cooperative team. I feel that industry offers me more opportunities to have an impact, as well as to do work that is practically useful and personally meaningful."

"So, although it is bittersweet to be leaving the TU/e and academia, winning an Ig Nobel as part of such a great team…well, there are worse ways to go. None of us ever imagined that we would be chosen for this prize, and we're honored to have our work recognized in this way."

The research was published last year in *Philosophical Transactions of the Royal Society B: Biological Sciences*.