ARBiT
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Guy Fawkes Night

A celebration, featuring mesmerizing fireworks, commemorating a historical event with bonfires and sparklers lighting up the night sky. Sometimes also called *Guy Fawkes Day*, this event has been around since just a few months after the Gunpowder Plot took place, on November 5, 1605. Also known as *Guido Fawkes* because of his historical fighting for the Spanish, Guy Fawkes was involved with a large conspiracy to kill King James I of England, only two years after he took the throne, as the plotters were angry because of the king's lack of acceptance of the Roman Catholic faith.

राष्ट्रदूत
TUESDAY
05 November 2024
A-B

#FALSE INFO

Fighting 'Fake News' can cut Trust in Reliable Sources, too

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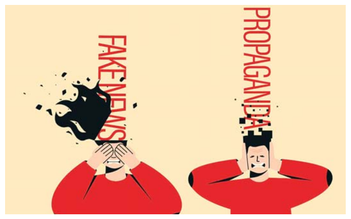

Efforts to fight false information increase public skepticism towards 'fake news,' but they also breed distrust in genuine, fact-based news sources, new research finds.

Studies have shown that few people actually come across false information in their day-to-day lives. And yet, concerns about the harm of 'fake news' may have increased in recent years. High-profile events such as the Capitol Riots, vaccine-hesitancy during the COVID-19 pandemic, and the war in Ukraine have fueled these concerns.

At the same time, fact-checking initiatives are on the rise. Major news platforms like BBC and CNN have incorporated fact-checking into their regular offerings, while media literacy campaigns have flourished, with programs designed to educate the public on how to make sense of what is true and false.

The new study now shows that these efforts have given rise to an unintended paradox. The very tools used to combat misinformation are fomenting distrust in all news, including from reliable sources.

The researchers conducted three online survey experiments involving 6,127 participants in the US, Poland, and Hong Kong to test the effectiveness of three corrective strategies currently used to combat misinformation, fact-checking, media literacy initiatives, and dedicated news reporting, and compared them with three alternative strategies. The idea of the redesigned strategies was to foster a critical, yet not overly skeptical, engagement with information. For instance, rather than focusing on whether news is either true or false, one of the redesigned strategies emphasized understanding political biases in news reporting.

The study reveals that the traditional tools as well as the alternative strategies, used to debunk myths, foster a broader sense of doubt among the public, even towards legitimate information. The redesigned strategies did not significantly outperform traditional tactics in improving the public's ability to distinguish fact from fiction, although, they were slightly better at doing so.

"Public discourse on fake news not only increases skepticism towards false information but also erodes trust in reliable news sources, which play a key role in functioning democracies," says first author, Emma Hoes.

According to Hoes, the potential gains from reducing misperceptions must be carefully weighed against the broader implications of heightened skepticism.

"This is particularly the case in many Western democracies, where reliable, fact-based news is fortunately still much more common than misinformation," she says.

Hoes and her fellow researchers therefore call for a deeper overhaul of current approaches to misinformation and the need to develop nuanced strategies. "The path forward is to educate the public on discerning facts with a critical eye, but without leading them to dismiss otherwise reliable information and sources outright."

A couple of weeks ago, Elon Musk's company, Space X, made headlines when it successfully launched its colossal *Starship* rocket and caught the returning 232-foot-tall booster using 'chopsticks,' at the launch pad, a feat which has never been attempted in human history, bringing Space X a step closer to its goal of building a fully, rapidly, reusable rocket system for sending cargo and humans on interplanetary expeditions. Rashtradoot brings you an exclusive interview with one of the team's key members, who accomplished this feat, Sanjeev Sharma, who is working as the principal engineer in Space X.

PART: 1

It is Rocket Science, dammit!

Shailaza Singh
Published Author, Poet and a YouTuber

What would you do if you got 100 million dollars? Perhaps, you would buy a palace or take a grand trip around the world? Maybe, you would just live life king-size for the rest of your days? But not Elon Musk. When he sold off his stake in PayPal, a payment platform, he founded Space X, a spaceflight services company in 2002. Later, he also invested in Tesla, an electric vehicle manufacturing company, and acquired the social media platform, Twitter, and renamed it X. Today, Space X has become the world's dominant space launch provider, rivalling the Chinese space program launch Cadence. It helps NASA and United States Armed Forces in their Space Missions, too. In fact, its Crew Dragon spacecraft will also be bringing back Sunita Williams and Butch Wilmore, the stranded astronauts in the International Space Station since NASA's Starliner developed propulsion problems and was deemed too risky to be deployed for the return of the two astronauts. Two weeks ago, Space X's Starship launched and caught back its colossal rocket's booster using 'chopsticks,' as its giant mechanical arms are affectionately called.

Since the launch of Starship, the internet has been obsessing about Sanjeev Sharma's resume on LinkedIn. There have been articles about how he is one of the 'keymen' in Elon Musk's team and how he has been instrumental in the recent success of Starship. People have been commenting on how this man made his way from Indian Railways to become the principal engineer at Space X. We, at Rashtradoot, decided to call America and talk to the man, instead of merely pondering over his resume. He was only too happy to oblige because in his words, this Leo 'wanted to speak for himself rather than people interpret his resume.' So, here is an exclusive interview with the man himself.

● When did you decide that you wanted to be an engineer?

From very early on I knew that I wanted to be an engineer because my dad is also an engineer. He's a technical engineer and worked for the government for years. I loved mechanical stuff like taking things apart and looking at how they work. I ended up at the University of Roorkee (now IIT, Roorkee). Back then, it was not an IIT. But actually, I wanted to enroll in the Indian Railway Institute of Mechanical and Electrical Engineers because I was more interested in the mechanical engineering aspects of large structures and the institute was famous for the hands-on training they provided. However, admission to UPSC through the central selection committee is so long that it takes about eight months after the higher secondary. So, since I didn't want to wait, in case I didn't make it, I joined the University of Roorkee. Luckily, the results came in after eight months and I got selected.

After completing my course, I became the assistant mechanical engineer in Dhanbad in Eastern Railway (as it was known at that time). Soon, I got promoted and became the divisional mechanical engineer. It was a very tough place to work in. It was all coal mines and the primary job was to check the freight in terms of railway wagons and trains and engines get combined into a train, and make sure that we dispatch these trains over to northern railway or thermal power plants everywhere. The area was so out of place. There were hardly any facilities but I enjoyed my work there. That place shaped my work ethic.

I was surrounded by very hard-working people. But all said and done, my motivation has always been about doing new things rather than working on the existing things or maintaining existing things or processes. So, I was there, only for two and a half years, and then in 1994, I was transferred to the newly established rail coach factory in Kapurthala. At that time, Punjab was coming out of terrorism and no one wanted to go there. But it was a very modern setup with a supercomputer, high-tech machines, and systems. So, I went there in 1994 and stayed till 2001. I started as a senior design engineer and was promoted to deputy chief engineer in mechanical design. We had to do everything from scratch, including migration from manual and mechanical printing to computer-based systems, which was first, even for the private sector in India. At that time, we also got some grants from the UN, and as a result, we got international experts to come to us and teach us how to design from scratch

Before that, I used to think that a lot of our engineering was essentially iterative and just tweaking what we had. But then, when we worked with these international experts, who taught us first principles and how to go about it, I realized that I needed to learn more if I wanted to be better.

By that time, I had already been in the workforce for about eight to nine years. By the end of 2001, I had applied for further studies. I wanted to get a master's degree in mechanical engineering and focus on areas where I think I lacked in terms of computer simulation analysis. Today, everything is available online, but back in the 2000s, you couldn't learn anything by yourself since there was no internet. So, one had to go back to school.

● But why did you choose an American School?

The reason was I wanted to learn at the best school possible. Also, I tried to apply to schools in Europe that were focused on railroad engineering or railway engineering, but the tuition cost was too prohibitive and they had no scholarships. So, the US was the one place where they did not have a strong railway focus, but they had a mechanical focus in related areas like automotive and aerospace. Schools in the US promised tuition waivers and scholarships for bright students, and that's why I applied to the US. I got accepted into the University of Colorado at Boulder. I took the thesis option as a part of my master's because that helped me to get a tuition waiver. So, I had to research hard disk drives. After some time, I got my research assistantship. I worked on the research and completed my project, which the sponsors of the project liked. After completing my MS, I wanted to go back to India.

However, though I wanted to come back, I could not because of two reasons. One, I was always interested in product development, research and design. Mechanical engineering is my first love. But my experience in the Indian Railways taught me that in India, the reason most people do engineering is not to get into the technical aspect of things but just to use it as a stepping stone to doing MBA in an IIM to become a well-rounded general administration sort of an officer. Had I gone back, I would have been responsible for human resources or procurement or something like that and would have lost this side of the work.

● So, you wanted to remain on the technical side of things?

Yes. it excited me to be an engineer and bring new technology for the benefit of society at large. For example, my research and work on hard drives. I realized that if we produce hard drives that can store data cheaply, it's easy to unlock several uses for digital data, which is precisely what happened. All the progress and information technology revolution would not have happened, had the hard drives not updated their capability by 25 per cent every six months for decades. Just imagine, the first 512 MB hard drive produced by IBM cost thousands of dollars, and today, you can get a hard drive of many terabytes for merely 20 dollars or something. So, it's mind-boggling and all of this has been done by engineers like me and much better than me. This is how we see things improving in society. It's the result of thousands and thousands of engineers, scientists, and technicians. It's exciting for me to be a part of this revolution and that is what I have always wanted to do. And so, that was one part of the decision

The second reason was that the company (Seagate Technology), that sponsored the research into hard drives, came back with a job offer in their R&D centre in Minneapolis. I worked there for about nine years. First, as an individual contributor and then, I was promoted to a team lead. My job was to help in producing very complex electromechanical devices, which I had to take back to the company's factory in Singapore. So, I was constantly shuttling between Minneapolis and Singapore. But after doing that for nine years, I saw a shift in the technology trends. During this time, I also did a master's in management of technology from the University of Minnesota. So, I was doing my regular job during the week, and on the weekend, I would drive up to Minneapolis downtown or the city campus and attend my classes.

● Coming back to the point where you said that people study engineering in India not because they want to do engineering but because they want to do MBA and get more money. Could you talk about it?

Well, I have been out of India for a good two decades, now. But when I was there, almost everyone, who was doing engineering, saw it as a stepping stone to becoming a manager. The best brains in IIT would either leave for the US or stay with India and do an IIM and become an MBA grad. This meant that all the physics, science and engineering, that was learned in school, was only supposed to be a stepping stone for a career in MBA finance, or private equity. In those days, those were the kind of hot careers to pursue, and IIT in the resume was just needed to make it look good. I, on the other hand, wanted to stay in engineering and not do an MBA. Also, in India, there were very few companies doing original research. Back then, most of our research in India in the engineering domain was reverse engineering. So, it was just about looking at technologies that have gone out of their patented life or technologies that are available and adapting them. It's mostly innovation, not invention, a lot of which did not require higher-order skills. All it required was to be able to interpret and copy. With such a mindset, organizations and society would value a manager's role more than an engineer's role.

In the US, it's always been different. Here, good engineers were far more valuable than good managers because companies like IBM and Seagate had totally different promotion channels for good engineers and they would keep their best talent and reward them for any new inventions, patents, etc. There was far more recognition both, within the organization, and outside the organization for good engineers, whereas that was not the case with India. I think that's why all Indian engineers aspire to be something else but not do engineering.

To be continued...

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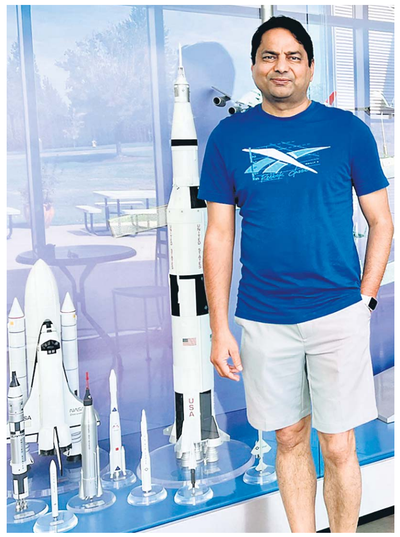
Space X booster being caught by the giant metallic arms.

At the graduation UC Boulder.

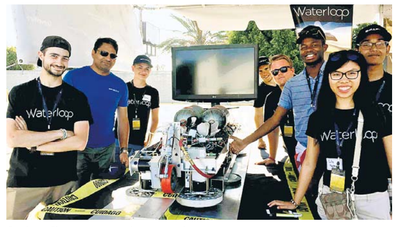


Sanjeev Sharma at Boeing Office.

#RASHTRADOOT EXCLUSIVE

Sanjeev Sharma with his wife and son in 2001.

At the Indian Railways in 1996.



Sanjeev Sharma mentoring water loop.

#FITNESS

The Digestive Power of an After-Dinner Walk

"Eat breakfast like a king, lunch like a prince, and dinner like a pauper."

For centuries, when someone referred to 'dinner,' they meant a meal, the largest of the day, which was eaten around noon. A lighter 'supper' was then consumed in the evening. Starting in the 18th century and accelerating in the 19th and 20th, the hour, at which dinner was eaten, moved later and later in the day. This shift occurred for various reasons. Later dinners became fashionable, electric lights facilitated dining after dark.

While these large evening meals may be convenient in our modern, industrialized societies, emerging research has shown that this schedule doesn't align very well with our innate human biology.

Because the efficiency of our metabolism peaks in the morning and then declines throughout the day, people, who eat the bulk of their calories early on, improve their blood sugar and insulin sensitivity. They're also less hungry and burn more fat than people who eat their biggest meals later in the day, and this is true even when people are eating the same amount of calories overall and doing the same amount of physical activity. Meal timing alone can make a significant difference in overall metabolic health.

It turns out that there's much wisdom in the old saying, "Eat breakfast like a king, lunch like a prince, and dinner like a pauper."

While it may be beneficial to eat a bigger breakfast/ lunch and keep one's dinner small (or non- existent, according to Hendricks' research, the ideal daily eating window is something like 8:00 A.M. to 2:00 P.M.), most people won't find this idea very appetizing for reasons both practical and psychological. There is something very satisfying about sitting down with loved ones for a big meal after the stress of the day is through.

If you're understandably not willing to mix up the timing and 'weight' of your meals, there is something you can do to blunt the negative effect of eating the bulk of your calories late in the day, an after-dinner walk. Whenever we eat, glucose hits our blood, and insulin rises to shuttle it into our cells. In the morning hours, our cells are more insulin sensitive, so that when insulin metaphorically knocks on their doors, the cells are more receptive to opening up and letting glucose in.

As the morning wears into evening, our cells become less insulin sensitive, meaning they start ignoring insulin's 'knocks,' leaving glucose in our blood. What's more, as the day progresses, our pancreas starts getting sluggish and produces less insulin, meaning our cells will become less responsive to sugar spikes because the knocks from insulin are less loud. This combo, less insulin sensitivity + less insulin, means that our blood sugar tends to be higher after meals eaten later in the day. This effect is, of course, only compounded when we eat a large meal later in the day. Thus, big dinners are not optimal for our metabolic health.

Fortunately, our body has another powerful way to clear glucose from our blood that doesn't rely on insulin, movement.

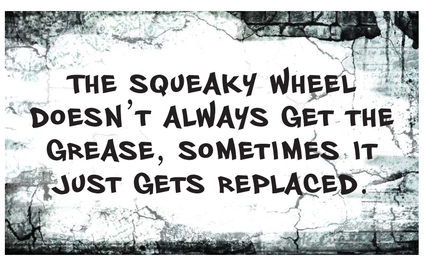
Muscle is the primary tissue in our body, and it also happens to be one of the main consumers of glucose. In fact, roughly 80% of the glucose, that gets cleared from our blood, goes into the muscle. The moment the muscle starts moving, contracting and relaxing, it opens its glucose doors, even though insulin isn't there knocking on them. And so, if we just get up and start moving, our muscles begin greedily consuming all of that glucose.

By getting your muscles to soak up glucose in the absence of insulin, an after-dinner walk blunts blood sugar's rise and allows it to come down quicker.

In a study done on people with diabetes, participants, who were asked to walk for 10 minutes after each main meal, improved their blood sugar curve more than those who were told to walk for 30 consecutive minutes at a random time, and this improvement was particularly striking after the evening meal.

Walking is also an aid to digestion in other ways. Because the intestinal system slows down when you sleep, a big evening meal can sit heavy in your stomach, disrupting your sleep. Research shows that a post-dinner walk stimulates the stomach and intestines, causing food to pass through them more quickly and giving your digestion a head start before you hit the hay. Walking after a meal can also diminish gas, heartburn, and bloating.

THE WALL



BABY BLUES

By Rick Kirkman & Jerry Scott

ZITS

By Jerry Scott & Jim Borgman