**Article 7:**

Facing death, these people found a clarity about how to live ‘I don’t sweat the small stuff any more’

Mari Isdale, 40, Greater Manchester, England

In 2015, Isdale, then 31, was diagnosed with stage four bowel cancer and given 18 months to live. Despite a period of remission and 170 rounds of chemotherapy, the disease has since spread to her lymph nodes.

I always thought, “I’ll get my career sorted, then we’ll get married, have children, go travelling.” And then cancer happened. You grieve for your future self. Your imagined children and your career. If I died tomorrow, what I’d be saying on my deathbed is I regret not spending enough time with my family. So that’s what I focus on.

I have a “Yolo list” of things I want to experience in life and my husband and family work very hard to ensure we do as many of them as possible together. They’ve taken me snorkelling in the Maldives, hot-air ballooning over Cappadocia and snowmobiling in

Iceland. We’ve stayed in a cave hotel, seen the pyramids, the Colosseum, and flown in a

helicopter over New York. We’ve hand-fed tigers, taken the Rocky Mountaineer train,

been paragliding and seen the tulip fields of Holland.

My life is most likely going to be short, so on my good days, when I’m well enough, I really

live. I go out and do anything I want: for a nice meal, to the theatre, cinema or an escape

room.

My illness has changed the way I prioritise things. Although I loved my career as a doctor,

it often meant long hours, missing out on Christmases and birthdays, exams, stress. Giving

that up is a big sacrifice, but it’s one I’m willing to make to gain more time with my loved

ones. It is ironic that it took being told I was dying before I really started living.

Anything that doesn’t make my heart sing is less important to me these days. I don’t sweat

the small stuff any more. Life is too short for cleaning. The laundry pile will wait. And if I

want to eat a piece of cake, I damn well do.

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‘Don’t waste energy fighting’

Michèle Bowley, 57, Basel-Stadt, Switzerland

After Bowley found a lump in her armpit in summer 2020, a biopsy revealed breast cancer.

The disease spread to her lungs, liver and bones, and in late 2021 she was given a

prognosis of three to six months.

Accept yourself and your situation. Don’t waste energy fighting. The most important

things in life are other people. Pay attention to your needs and do what makes you happy.

Do something creative, learn something new, get involved in something that matters to

you. Enjoy your life to the last breath.

I have no regrets. I’ve always done what was important to me and have reached my full

potential regardless of what others expected or thought of me. I’ve had a fulfilled life; I’m

ready to go.

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‘Having a sense of purpose brings joy’

Mark Edmondson, 41, Sussex, England

Mark Edmondson: ‘I’ve never been happier.’ Photograph: Lydia Goldblatt/The Guardian

In 2017, Edmondson was diagnosed with colon cancer. After doctors also discovered more

than 30 tumours in his liver, he was given a year to live. He has since undergone more than

140 rounds of chemotherapy and over 30 operations.

Prior to getting cancer, I had ambitions of becoming a managing director or CEO; I wanted

to achieve something in my career. Within hours of the diagnosis, that disappeared. I don’t

care for work any more, but I believe strongly in having a sense of purpose, something to

motivate and distract you, and bring joy and satisfaction. I get that from the business I

started: a support service for anyone facing adversity. If someone had said, two years into

my treatment, “Do you feel able to support other people through their diagnosis?”, I would

have said no way. But as time has passed I do, and I’ve spoken to more than 100 people. I

love coaching and mentoring. I’ve never been happier.

I lead every session with this quote and loop back to it at the end: “It’s not what happens to

us, but how we react that defines who we are.” So how do you want to be defined? Cancer

or no cancer, that question should dictate how you live.

I’m a big believer in being as honest and open as possible. Men are notoriously bad at

sharing our feelings, but I want to change that for my boys.

We get pushed along in this world by consumerism, but it doesn’t matter what car or

house we have, as long as we’re comfortable. What really matters is love, relationships,

kindness, caring for people, being around people. I want to create the best relationships I

can, and live the happiest life I can, because I no longer know what my timeframe is.

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‘It’s not about the quantity of time I’ve got, it’s the quality’

Chris Johnson, 44, Tyne and Wear, England

In 2019, Johnson was diagnosed with a rare gastrointestinal cancer. In 2020, hundreds of

small tumours found on his liver led to a prognosis of two to five years.

I’ve got limited time, so I’d rather be doing things with family and friends, and having a

positive impact on the world around me. I’m not in the office wearing a shirt and tie any

more. In 2021 I was running marathons, and last year I completed the National Three

Peaks Challenge.

Fundraising has been the main driver but exercise also helps with the side-effects of my

treatment, though as that progresses, it’s becoming harder to do long distances.

I still care about politics, the climate and my football team, but I don’t get stressed about

them any more. It’s not about the quantity of time I’ve got it, it’s the quality.

People talk about beating cancer or winning. I’m never going to beat cancer, it’s not an

option. At some point it will kill me. But until then, how I live my life is my version of

winning.

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‘Cancer sorts out what really matters’

Siobhan O’Sullivan, 49, New South Wales, Australia

After feeling unwell for two weeks, O’Sullivan was diagnosed with ovarian cancer in

August 2020. It had already spread beyond her ovaries, and did not respond to

chemotherapy.

I have a lot of colleagues and friends around the world, and people have mailed me gifts

from every corner of the globe. An English friend flew out to see me for three days; he

spent longer in the air than with me. This is the kind of generosity of spirit that people

have shown me and it’s been very moving.

Cancer has been extremely effective in sorting out what really matters and what doesn’t. I

was always a very busy person, and if I was meeting someone for lunch at 1pm and they

strolled in at 1.20, I might have been irritated. Now I’ve realised none of that matters. I

would love to have had this insight and these connections without having to go through

this cancer bullshit. But I don’t think there’s a shortcut to it.

Siobhan O’Sullivan died on 17 June 2023.

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‘Sharing your feelings helps’

Harry Soko, 59, Salima, Malawi

In July 2020 Soko noticed a pain in his right thigh. A year later he was diagnosed with skin

cancer, which will significantly shorten his life: a 2014 study at the care centre where he is

being treated found only 5% of patients with the condition live more than five years.

Normally we say, “If you are suffering from cancer, the immediate result is death.” So my

family accepted it. The community accepted it. When I’m alone or sleeping, it comes to me:

“Why am I suffering from cancer? How did I get it?” It takes time to accept. But if you share

your feelings with others, you become free. You have no worries.

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‘My illness stripped me of my fears’

Juan Reyes, 56, Texas, US

Reyes was diagnosed with ALS in 2015; he’d had symptoms for two years, and the average

survival time is three. In the next six months he became a wheelchair user; he has since

lost the use of his hands.

I’m very much an introvert, quiet and reserved, and afraid of public speaking. Having to

live with ALS has stripped me of many of my fears. I’ve always had a very silly streak with

close friends and family, and now I use that as a power, to entertain and educate through

comedy.

The first time I did standup was in October 2019, at a fundraiser for ALS I’d organised at a

local comedy club. I didn’t intend to do it, but as I was opening the evening, I took a chance.

Afterwards I felt incredibly alive.

I also went skydiving six months after diagnosis. The first step out of the aircraft took my

breath away. The rush of air was deafening, then I was suspended above the landscape.

The serene silence, interrupted by the rustling of the canopy, was life-altering. I’m so glad I

experienced this. I’m dying, so what is there to fear?

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‘Stop worrying about having a good job or needing a big house’

Caroline Richards, 44, Bridgend, Wales

Her son was 16 months old when, in 2014, a swelling in Richards’s stomach was diagnosed

as bowel cancer. She was told that, with successful chemotherapy, she would probably live

for two years.

These past nine years have been really good, probably better than if I hadn’t had cancer.

Different things became a priority: spending time together rather than worrying about

having a good job or thinking you need a big house.

In a way I feel lucky – I could have died when my son was three or four. I feel as if I’m living

on borrowed time. But he knows me. He’ll remember me.

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‘Find gratitude’

Tyra Wilkinson, 50, Ontario, Canada

A family history of breast cancer meant that when Wilkinson was diagnosed with the

disease in 2015, she had already made plans for a mastectomy. Seven years later, the

cancer had returned and spread to her spine, making it incurable.

My husband and I had plans for when our kids were grown. We have always said we’d be

the most fit grandparents, playing with our grandkids on the ground. Even if I’m alive I

won’t be able to be that grandparent, because I’m just not capable of doing that stuff now.

Find the gratitude for what you have because it can always – and will always – get worse.

Be grateful for all the things that are going your way right now.

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‘Go to the parties. Stay out late’

Amanda Nicole Tam, 23, Quebec, Canada

After noticing symptoms in January 2021, Tam was diagnosed with amyotrophic lateral

sclerosis (ALS) that October – five days before her 21st birthday.

I wish I had gone out more with my friends. I wish I had gone to parties and stayed out late.

Living life free-spirited is something I feel I missed out on, and I regret that I didn’t take

advantage of that when I was younger. Life is short and you should live it how you want,

regardless of what people think. Don’t hold back. Say what you want to say and do what

you want to do.

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‘Have a goal. Don’t accept defeat’

Mark Hughes, 62, Essex, England

More than 20 years ago, pneumonia led to the discovery of a tumour in Hughes’s lung.

Surgery was successful, but the cancer had spread to his lymph nodes. In 2010, a rare form

of the disease, which is now terminal, was found in his bones.

It’s about having a goal, a purpose, setting your sights somewhere. I won’t be beaten down

or accept defeat. The only way is forward, and there’s always a finishing post I’m aiming

for. If you get knocked down, get back up, brush yourself down and go again. That’s what

keeps me going.

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‘You are enough; you make a difference’

Chanel Hobbs, 53, Virginia, US

At 37, Hobbs found herself unable to run without falling; she was diagnosed with ALS and

given a life expectancy of up to five years. She is now dependent on a ventilator and

feeding tube.

Before my diagnosis, I was very independent. I prided myself on doing things on my own.

But I’ve learned that others really want to assist, and it brings them joy knowing they can

make a difference, however small.

I always used to plan every single facet of my life. I wish I had been more spontaneous and

done things when they crossed my mind. For example, looking out the window and

wanting to go for a walk, but doing housework instead. How I yearn for a walk today. Now

I give myself grace. I have learned not to compare myself with others. Find what makes

you feel meaningful. Remember: you are enough, you are human, and you make a

difference.

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‘No matter how you feel, get up, get dressed and get out’

Simon Penwright, 52, Buckinghamshire, England

In the early hours of 24 January 2023, Penwright was woken by an unpleasant taste and

smell. Doctors discovered three brain tumours, one covering half of his brain. He was

diagnosed with an aggressive form of glioblastoma and given less than 12 months to live.

It would be so easy to wake up in the morning and just lie in bed. I’m not a gym person, but

when I’ve done a bit of exercise, I feel fantastic. No matter how you feel, get up, get

dressed and get out.

If you’re OK one minute, then have a cardiac arrest and you’re gone the next, your options

are taken away. So I guess I’m grateful that I can get organised and make the most of my

relationships. I’d take this route every time.

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‘I’ve stopped caring what others think’

Sukhy Bahia, 39, London, England

Diagnosed with primary breast cancer in 2019, Bahia was given the all-clear by her

oncologist in March 2022. Five months later, she discovered the disease had spread to her

bones and her liver.

I’m a single mum. It’s heartbreaking because you think you’ll be around for your kids for a

really long time. My daughter is nine and my son is six, and I’m completely transparent

with them about my health. I’m hoping to leave things for when I’m not here – birthday,

graduation, wedding, new home, new baby cards, and a cookbook of all their favourite

recipes. I’m also planning video blogs, giving advice on things they may not be comfortable

asking anyone else, like consent and puberty.

I want them to know that they never have to impress anyone or try to fit in, and that

milestones are bullshit. Nothing needs to be done by a certain age or time; you can always

change what you want to do in life.

I’ve stopped caring what other people think of me. From my teens, I always wanted a full

sleeve tattoo. Last year I decided to start one with the birth flowers of my children, to

show how much they mean to me.

My kids love them; my parents aren’t over the moon, but they accept there are worse

things I could be doing with my life.

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‘Never create a new regret’

Kevin Webber, 58, Surrey, England

On holiday in 2014, Webber noticed he was visiting the bathroom a lot. Soon after he was diagnosed with prostate cancer and given four years to live.

I don’t have many regrets. Maybe I wish I’d taken my kids to school more. When they grow up, you realise that meeting you had at work, you could have probably moved it back an hour.

In that moment, when you know it’s over, I don’t want to look back with any remorse. You

can’t change yesterday. Never creating a new regret is an important way to live your life.

I have three missions every day. Enjoy myself, but never at the expense of someone else.

Try to do some good – and that doesn’t have to be raising 10 grand for charity; it can be

smiling or giving someone a seat on the bus. And make the best memories, not just for you

on your deathbed, so you can lie there and go, “Oh, that was great when I did that”, but for

everyone else.

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‘I realised what I really wanted to do’

Sophie Umhofer, 42, Warwickshire, England

In 2018, after 10 months of tests for conditions such as IBS and Crohn’s disease, Umhofer was diagnosed with bowel cancer, which had spread to other parts of her body. She was told she could live for three more years.

Initially I felt as if I had to cram the rest of my life into the couple of years I’d been given.

I’ve written birthday cards and letters for my kids until they’re 21, preparing them for me not being here.

Obviously I wish it hadn’t been cancer that caused this, but I’ve changed so many things about myself. Before my diagnosis I would get very stressed out. I had this perfectionism

when my kids were young that they had to have routines. I spent so much time being

worried about things I didn’t need to do. And once I became a mum, I sort of gave up what I

wanted to do.

I regret that I didn’t take action for myself a bit more. But this diagnosis meant that all of a

sudden, I realised what I really wanted to do. When I was going through chemo I was

trying to find things I could do to keep myself entertained, and I started watching

motorsport. When I got a bit better I actually entered a competition and got through to

the finals. I ended up getting a job in motorsport and now work full-time looking after a

team. I wish everybody could see how much better life can be if we change the way we

think.

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‘Leave the damn house’

Arabella Proffer, 45, Ohio, US

In 2010, Proffer was diagnosed with myxoid sarcoma. Ten years later, the rare form of

cancer was found to have spread to her spine, lungs, kidney and abdomen. Told to get her

affairs in order, she now plans her life two months at a time.

A year before I was first diagnosed, my husband had joked, “Hey, why don’t we cash out

our retirement and follow Motörhead and the Damned on tour through Europe?” When I

got the diagnosis, I thought, “We should have done that.”

My mantra is to leave the damn house, because you never know what’s going to happen if

you do. No interesting story ever started with, “I went to bed at 9pm on a Tuesday.”

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‘Just buy it. Do it. Go and get it’

James Smith, 39, Hampshire, England

In 2019, Smith noticed a twitch, then a weakness in his left arm. Two years later he was

diagnosed with motor neurone disease (MND).

When I was told I’ve probably got only a few years to live, my wife was pregnant with our

youngest. In the back of your mind you’re thinking, “Am I going to see them get married?

Have kids?”

I did turn to alcohol, but it wasn’t doing me any favours; I was using it to block out what I

didn’t want to think about, so I nipped it in the bud. Now I’ve come to terms with what I’ve

got and I just take every day as it comes. I focus on what I can do, not what I can’t do. I had

to give up my career as a barber, but I’ve found a new passion in creating my podcast,

which shares my story and those of others to raise awareness of MND. Talking to others

and relating to people going through the same situations as me is like therapy.

It’s horrible to say it takes a terminal illness to actually live life, but when I hear people

going, “I’d love to do that”, I realise getting diagnosed has put a different perspective on

life. I used to think, “I won’t buy that because I don’t know what’s around the corner.” Now

it’s just buy it, just do it. If you want something and can afford it, go and get it. If you want

to do something and you’ve got the means, go and do it.

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‘I soon realised what I liked about life’

Ali Travis, 34, London, England

At 32, Travis began experiencing severe headaches. After an MRI revealed a mass the size

of an orange on his brain, he was told he had a glioblastoma and his life expectancy was 12

to 14 months.

Last year was the best year I’ve had because in a very, very short space of time, I realised

what I liked about life. It’s the closeness of relationships, old friendships. And, for me,

being a geek.

If I’d been hit by a bus, I’d have been a stressed guy with a load of problems who couldn’t

see past the end of his nose. So, despite all the surgeries, the constant chemotherapy, the

radiotherapy, I would choose this route.

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‘Look after yourself first’

Sonja Crosby, 55, Ontario, Canada

In 2012, doctors discovered a tumour on Crosby’s left kidney. She was diagnosed with a

rare form of cancer, and most organs were removed from her left side. In 2017 she was

given six months to live.

Cancer focused me more precisely than anything else I can think of. When my doctor told

me I had a few months left, I said, “Can we put that off another six months?I have this big

project at work I want to finish.” He said, “No, you have to be your priority now, not work.”

You can’t manage all aspects of your life. I’ve realised it’s not selfish to look after yourself

first, that your friends and family will do a lot more if they know you’re open to receiving

help.

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‘My favourite saying is: it is what it is’

Rob Jones, 69, Merseyside, England

In October 2012, Jones was told he had bowel cancer that had spread to his liver. He had

27 rounds of chemotherapy.

I’m not a bucket list person; I don’t go through life saying, “I wish I’d done that.” My wife

says I’m one of the worst people in the world to buy anything for, because if I want it, I get

it. It’s the same in life, if we can afford it. But I’ve never had dreams of doing a world cruise

or a flight to America. I’m a home bird really.

I read once that cancer victims are lucky in life, because they generally have a timeframe

of when they’re going to die. They can put their life in order, say goodbye to loved ones,

ignore all the people they’ve tolerated to be polite. Whereas people who have a massive

heart attack and die on the spot, they don’t have that opportunity. I sort of get that now.

But I’m not allowed to talk as if the end of the world is nigh, because everybody thinks I’m

invincible. Of course, none of us are.

My favourite saying is: it is what it is. If we had the choice, we’d all live a long, happy life.

But when would we choose to die? There isn’t a convenient time.

Rob Jones died on 28 July 2023.

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‘What’s the point of earning, earning, earning, if there’s no joy in your life?’

Jules Fielder, 39, East Sussex, England

In November 2021, Fielder was diagnosed with double lung cancer, then shortly after told

the disease had spread to her spine and both sides of her pelvis.

You get caught up in that world of work: pay your bills, eat dinner, sleep, repeat. But now I

truly feel very different about money. What’s the point of earning, earning, earning if

there’s no joy in your life? When I watch really power-driven people who want more and

more, I want to tell them it’s the small things in life that are beautiful. We live in quite a

toxic world, but it’s your choice what you expose yourself to. I get up, I walk my dog, I listen

to every single bird that chirps. I’m grateful for that.

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‘Be authentically you’

Mike Sumner, 40, Yorkshire, England

While on TV show First Dates in March 2020, Sumner noticed a loss of movement in his

foot. Eight months later he was diagnosed with motor neurone disease. He has since

married his date, Zoe.

I don’t waste time now. Life is too short to be doing any shit you don’t want to.

Concentrate on making the memories you want and never say no, never make excuses. Do

things you’ve always wanted to do. We went to Los Angeles to see the Back to the Future

set at Universal Studios. I’ve been meaning to go for years. It was our little pilgrimage.

In the short term I keep positive by thinking about weekends, because we often go away

and do something fun – next weekend we are going to a classic car show. In the longer

term, I look forward to our next holiday – we always go to Orlando. When I feel the warm

air on my skin, and hear the crickets of an evening, it lifts me emotionally.

Day-to-day I look forward to Zoe coming home from work so I can give her a cuddle. I look

at my model car collection and think about the happy memories I have of driving. When I

feel a bit low, I treat myself to something nice to eat – pizza, a burger or a battered

haddock – while I can still enjoy food.

You have to be authentically you. But try not to moan because there’s always someone

worse off than you. Focus on the positives; there are always some. For example, I’m

married to Zoe.

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‘Keep things simple’

Alec Steele, 82, Angus, Scotland

In 2020, while in hospital for a routine checkup, Steele collapsed. Tests revealed idiopathic

pulmonary fibrosis – which causes scarring on the lungs and leads to difficulty breathing –

and he was given a prognosis of one to five years. He now requires a 24-hour oxygen

supply.

The first six months after diagnosis were dreadful. I was trying to get all my affairs in

order, and I told my medical team I was determined to have one last game of cricket. The

physiotherapist and I worked as hard as we could, and in late April 2021 I got my game,

wicketkeeping with oxygen strapped to my back. A photographer took a photo and put it

on the internet. It is now displayed at the Oval, next to Ben Stokes’s photo. Last year I had

16 games, which has just been wonderful.

I’ve realised I have to keep things as simple as possible. I soon learned that negative

thoughts were destructive and I trained my mind to work out those you can do something

about and those you can’t. If it’s the latter, discard them. If you can do something, work out

what and get started to tackle the problem.

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‘Switch every negative to a positive’

Kate Enell, 31, Merseyside, England

In July 2021, less than a month after finding a lump in her breast, Enell, then 28, was

diagnosed with stage four breast cancer. It had spread to her liver and bones, and has

since moved to her brain.

For two days after being diagnosed I locked myself in the bedroom; I didn’t see or speak to

anyone. But on the third day I thought, “Wait – if I’ve only got a short timescale, do I really

want my little boy to see me miserable?” Now I just try to do as much as I can while I’m

here. I’m quite good at switching my brain now. Say I get upset about not being able to

have more children, I switch it round and think, “Well, I am a mum.” Whenever there’s a

negative, I try to switch it and keep positive.

I feel like I’ve had some of my best times in the first few years of my diagnosis, because it

makes you home in on what’s important. Everybody around me has made more of an

effort, we’ve done lots of family events. It’s made us realise that what’s important is

spending quality time together.

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‘Success, status, reputation – they are not important’

Ian Flatt, 58, Yorkshire, England

Flatt had always led a very active life, but in April 2018 he began struggling with severe

fatigue. By the following March he had been diagnosed with MND and he has since lost

the use of his legs.

I can categorically say that the things I valued and felt were important are not important.

Success, status, reputation – they pay the mortgage, but I think I lost myself a little bit in all

that. I’m much more emotional and empathic now. I’ve always been a reasonably popular

guy, I have friends that go back 30-odd years, but I’ve never had the depth of friendship

that I have now. Or maybe I had it and didn’t appreciate it.

What’s important now, every day, is to find some joy. I look out at the birds, the trees – I’ve

a favourite one I can see out of my bedroom window. Through being a bit reckless, I lost

the use of my legs sooner than I would have. I remember accepting that and thinking, “OK,

I’m not going to walk, so let’s go out in the tangerine dream machine [his off-road

wheelchair].” We went out, had a pint of Guinness, and now my memory of that day is a

joyful one.

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‘Your energy is valuable’

Daniel Nicewonger, 55, Pennsylvania, US

In May 2016, after he started struggling to take a full breath, Nicewonger was told he had

colon cancer that had spread to his liver. The prognosis was two years.

It took this to clarify what’s really important. You get very good at saying, “No, I choose not

to invest energy and time in this, because my energy and my time is just that much more

valuable.” If I could have understood that at 30, I’d have moved through life in a totally

different way. But that’s unrealistic. Wisdom is wasted on the young.

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‘Don’t mess around. Be direct’

Angus Pratt, 65, British Columbia, Canada

A lump on Pratt’s chest in 2018 led to the discovery of breast and lung cancer. He was

given a 5% chance of living to 2023.

I had my diagnosis in May, my wife was diagnosed with pancreatic cancer at the start of

October, and by the middle of November she was dead. I had to ask myself the big

question: am I leaving behind what I want to leave behind?

I’ve taken on writing assignments, helping scientists translate research into

patient-friendly language. Recently I was asked to contribute a painting to an auction, and

I was surprised people would pay for my art. One of my joys is a local poetry group that

meets in the park. Sometimes we have an open mic. I guess I’m trying to say I’m a poet, too.

I’ve discovered self-confidence. I really don’t care what people think about me any more;

it’s not important because I’m going to die. I don’t have time to mess around, so I’m going

to be direct. That’s stood me in good stead.

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‘I should have trusted myself more’

Henriette van den Broek, 63, Gelderland, the Netherlands

When Van den Brook was diagnosed with breast cancer in 2008, the disease had already spread to her lymph nodes. She was well for a number of years, but in 2020 she discovered that the cancer had spread to her stomach and was terminal.

Every day when I work as a nurse, it feels like a party for me. I realise how meaningful I can still be to other sick people. I enjoy the little things more, dare to have the difficult conversations.

It’s a pity I’m only finding that out now. I feel like I need to catch up on this in a hurry and get the most out of life. I’m discovering the things I’m good at, but I’d have liked to discover them sooner. I should have trusted myself a lot more and been less insecure. I only have the guts now.

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‘Treat every smile like it’s your last’

Ricky Marques, 42, St Helier, Jersey

In summer 2022, Marques began to lose weight. In November, a CT scan led to a diagnosis of lung cancer. The disease, which has spread to his bones and lymph nodes, was so advanced that he was given a prognosis of weeks or months.

When I was younger I had a son, and when he was eight, he died in a car accident. My life collapsed and I thought, “How am I going to recover?” When I was diagnosed with terminal cancer I thought, “What else am I going to get? Didn’t I already have my share of bad luck?

Don’t I deserve to live?”

The lesson I’ve learned is every time someone smiles at you – a little touch, a little gesture

– look at it like it’s the last one because, guess what? Maybe it is.

Explanation of the article:

Shahzar’s Note:

Nothing much to explain here. Read through the parts.

Article 8:

Try applying the TEST approach - Translate -> Explain -> Summarize

-> Think

A summary and explanation of the article is given at the end of this

document.

There are few things better for us than regular rest. Whether it's breaks during the day,

hobbies that take our mind off work, weekly sabbaths or annual vacations, routines that

layer periods of work and rest help us be more productive, have more sustainable careers,

and enjoy richer and more meaningful lives.

Too often, rest gets a bad rap in our always-on, work-obsessed world. It's also the case

that learning to rest well is actually hard. Why is that? And how can we rest better?

Americans have long been known for our industry and ambition, but until recently, we also

recognized the value of rest. The Puritans had a famously strict work ethic, but they also

took their Sundays very seriously. In 1842, Henry David Thoreau observed, “The really

efficient laborer will be found not to crowd his day with work, but will saunter to his task

surrounded by a wide halo of ease and leisure;" a decade later he wrote, “A broad margin

of leisure is as beautiful in a man's life as in a book." Post-Civil War captains of industry

didn't rise and grind, according to business journalist Bertie Charles Forbes:"No man goes

in more whole-heartedly for sport and other forms of recreation than"industrialist

Coleman du Pont, while Teddy Roosevelt “boisterously… enters into recreation" despite a

busy public life. At the same time, union organizers, mass media and entertainment, and

the parks movement democratized leisure: rest became a right, enshrined as much in

college sports and penny arcades as in labor law. Richard Nixon, during a campaign speech

in 1956, predicted that"new forms of production will evolve"to make "back-breaking toil

and mind-wearying tension" a thing of the past, and "a four-day week and family life will

be... enjoyed by every American." Together, these sources paint a vision of American life in

which work and leisure are partners in a good life, and "machines and electronic devices,"

as Nixon called them, created more time for everyone.

But in recent decades, the world turned against rest. Globalization, the decline of unions,

and the rise of gig work are factors that have created an environment in which people and

companies feel compelled to work constantly. The CEO, for example, who steadily worked

his way up from the mailroom to the corner office has been replaced by the 20-something

genius who makes billions by disrupting the system. Technology lets us carry our offices

around in our pockets, and makes it almost impossible for us to disconnect from work.

Even the blue-tinted glow of our screens and late-night traffic noise can have a

measurable impact on the quality of our sleep. Add raising children and managing family

schedules, and Thoreau's "wide halo of ease and leisure" sounds great, but ultimately,

impossible.

Early in your career, it's easy to believe that passion and youthful energy are

inexhaustible. But at some point, family demands, a health scare, or the passage of time

forces you to find ways of working that rely on experience rather than raw energy, are

more sustainable, and let us run marathons rather than sprints. Not everyone successfully

makes the transition. But in studying everyone from Nobel laureates and emergency room

nurses, I've found that people who are able to do the work they love for decades, rather

than burn out in a few years, share a few things in common.

For people who have control over their daily schedules layer periods of"deep work," as Cal

Newport calls it, and "deliberate rest,"time to both recharge and let the creative

subconscious examine problems that they haven't been able to solve through hard work.

Many great scientists, mathematicians, and composers have daily routines in which they

work intensively for a couple hours, take a long break, then work a couple more—and

those four or five hours give you enough time to make steady progress on your work, and

come up with some new, unexpected ideas.

People in high-stress, unpredictable jobs can't depend on such routines; but the most

successful at dealing with the challenges of work rely on two other things: First, they have

good boundaries between work and personal time. Second, they have serious

hobbies—everything from quilting, to rebuilding classic cars, to running marathons—that

are as absorbing as their work. This "deep play"illustrates another important point: the

best rest is active, not just passive. We often think of “rest” as involving a bag of salty

snacks and a TV remote, but working out or playing piano actually recharges your mental

and physical batteries more effectively than binge-watching that hot new show.

Long-term studies reveal another important rest hack. Taking annual vacations boosts

your happiness, improves your cardiovascular health, and helps you age better compared

to colleagues who chain themselves to the office. (You'll also be more productive and

boost your chances of promotion.) Vacations and sabbaticals can also be an incubator for

new ideas. Lin-Manuel Miranda started toying with the idea of a musical about Alexander

Hamilton after reading Ron Chernow's biography on vacation."It’s no accident that the

best idea I’ve ever had in my life—maybe the best one I’ll ever have in my life—came to me

on vacation," Miranda said in 2016."The moment my brain got a moment’s rest, ‘Hamilton’

walked into it."

So let’s say you take rest seriously, recognize its importance for their health and

performance, and calculate that a more disciplined, measured approach to work will pay

off in the long run. How can you get started?

For many, it begins at work. Reducing distractions, becoming more efficient at tasks you

can control, and automating routine duties can create time in your day for short breaks

that recharge your batteries, and make it easier to maintain clear lines between work and

personal time. Better planning and prioritizing will also mean fewer late nights and

avoidable crises. Doing this with colleagues amplifies the benefits. Companies that adopt

four-day workweeks succeed because they redesign their workday to give everyone more

deep work time, less time in meetings, and fewer interruptions.

Next, find your deep play. If you have a hobby you're passionate about, you're more likely

to make time for it, and feel good about doing it. If you already have a favorite pastime that

was crowded out by work, you have permission to take it back up. If not, look for

something that offers satisfactions as rich as work when it goes well, but in concentrated

doses, and in a completely different environment (outdoors and physical if you work in an

office). You can't think about clients on a surfboard.

Take your vacations. Shorter, more frequent vacations are often more restorative,

because they're lower-stakes than once-in-a-lifetime expeditions, and a drip-feed of

anticipation, escape, and recovery is better than one big hit of happiness a year. The only

bad vacation is the one you don't take.

Finally, play a long game. It may feel like a waste of time at first but layering periods of

work and rest in your day, your week, and your year help you work more consistently,

more sustainably, and to a higher level of quality. We're fascinated by youthful genius and

overnight success, but immortality-level accomplishment often comes later in life, after

decades of steady work: Margaret Atwood wrote The Handmaid's Tale when she was 45;

Charles Darwin was 50 when he published The Origin of Species; Duke Ellington made his

immortal Newport Jazz Festival appearance at 57; and JRR Tolkien published The Return

of the King at 63. Deliberate rest, woven into your days and life, acts as a mainspring and

regulator, giving you more energy, more ideas, and more time for good work and a good

life. In today's always-on world, few things are harder to do than rest. But few things are

more worthwhile.

Explanation of the article:

Introduction

The author highlights the importance of regular rest in our lives, whether it's

short breaks, hobbies, weekly sabbaths, or annual vacations. These periods of

rest not only enhance productivity but also contribute to a more fulfilling and

meaningful existence. Despite its benefits, rest often faces neglect in our

fast-paced, work-centric society, and learning to rest effectively can be

challenging.

Historical Context

The article delves into American history to underscore the cultural

significance of rest. While industriousness and ambition have long been

celebrated traits, past generations also valued rest. From the Puritans'

observance of Sundays to Teddy Roosevelt's recreation amidst a busy public

life, leisure was considered essential for a balanced and fulfilling existence.

However, recent societal shifts, such as globalization and technological

advancements, have placed greater emphasis on constant productivity,

making it difficult for individuals to prioritize rest.

Strategies for Effective Rest

The author discusses strategies for achieving effective rest, drawing from the

experiences of individuals who have sustained fulfilling careers. These

strategies include integrating periods of"deep work" with deliberate rest,

establishing clear boundaries between work and personal time, and engaging

in absorbing hobbies. Additionally, the article highlights the benefits of taking

annual vacations, which not only promote happiness and cardiovascular

health but also stimulate creativity and innovation.

Practical Tips

The article concludes with practical tips for incorporating rest into daily life.

It encourages reducing distractions at work, prioritizing tasks efficiently, and

adopting a four-day workweek model to optimize productivity and rest.

Furthermore, it emphasizes the importance of pursuing hobbies and taking

regular vacations to replenish energy and foster creativity. By embracing rest

as a vital component of success and well-being, individuals can achieve

greater longevity and fulfillment in their careers and lives.

Article 9:

Try applying the TEST approach - Translate -> Explain -> Summarize

-> Think

A summary and explanation of the article is given at the end of this

document.

The millennial internet first died in 2015.

I remember the day exactly because I was one of seven staffers, in addition to many more

permalancers, at Gawker Media who were laid off as part of a company-wide

restructuring. I received a message on Slack, was asked to join a meeting in a nearby

conference room, told that today, November 17, was my last day working for Gawker, and

by the time I returned to my desk all of my accounts were disabled. For the company to

“optimize and sharpen all the sites going forward,” executive editor John Cook explained in

a memo—sites that also included Jezebel, Deadspin, Lifehacker, and Gizmodo—“shifting

personnel” was necessary.

In truth, I’d lasted much longer than I ever expected to. In my 18 months as a senior editor,

I commissioned more than 150 stories and published young writers like Vann Newkirk II,

P. E. Moskowitz, Donovan X. Ramsey, and Josie Duffy. When people ask me what it was like

to work at Gawker, notorious for its sometimes unrealistic traffic demands on staffers, my

answer is always the same: “I had no road map. I threw things at the wall to see what

stuck.”

My directive was to help expand the voice of the site, so I intentionally cast a wide net. I

tasked writers—people like me who never once considered that their work could be

published on Gawker—to report on topics ranging from the rise of suburban poverty and

the shady business of secondary policing to workplace racism, gentrification, interracial

dating, and the joys of eating ass.

Gawker, like every other media company trying to survive this next internet evolution, was

chasing virality. Good stories mattered, but numbers mattered just as much. There was

never an exact science to the stories I commissioned. Some did exceedingly well for

obvious reasons—“Tinder Is Full of Robot Prostitutes” (198,000 visitors); “What Serial

Gets Wrong” (296,000); “Why I Pee Sitting Down” (110,000)—while others bombed for

reasons I still can’t make sense of.

But there was no sense to be made of the moment we found ourselves in. The internet was

undergoing a transformation that would determine the ethos of the generation ahead.

Facebook, Twitter, and the introduction of social media had completely reengineered

business models. Everything, as Nicholas Carr has suggested about the pinballing effect of

social media, was being uprooted. “Radically biased toward space and against time, social

media is inherently destabilizing,” he wrote in 2018. “What it teaches us, through its

whirlwind of fleeting messages, is that nothing lasts. Everything is disposable. Novelty

rules.”

BuzzFeed knew a thing or two about novelty. It was also trying to understand how to seize

the attention of a mass audience. Unlike Gawker, BuzzFeed took a much more wholesale

approach to gaming traffic. Steered by CEO Jonah Peretti, it implemented a medley of

quizzes, Twitter recaps, listicles, news stories, and long-form investigations as its bread

and butter. BuzzFeed was the apex of internet production for a brief period. Remember

the dress? Elsewhere, sites like The Awl and The Hairpin platformed newbie

writers—Lauren Michele Jackson, Vinson Cunningham, Bryan Washington—with a

renegade interest in pop culture. Before I had the great fortune of working with him at

Gawker, I obsessively read Tom Scocca’s weather reviews with a mix of anticipation and

private glee. They were like small mood boards for a generation still finding its way. The

temperature of the millennial internet, of course, was never the same. It was in a state of

continuous change, entertaining and elusive all at once.

THE SECOND TIME the millennial internet died, when The Awl shut its doors for good on

January 31, 2018, I remember thinking how Scocca had captured the sentiment of the

millennial web and the era it birthed perfectly: “Every fugitive bit of light might be the last

one.” Because that’s how it felt to create, work, and waste time on the internet of the

2010s. It was one big secret that all of us were in on, having fun as we remade digital

media in a way that felt true to us, never knowing if tomorrow the light we illuminated

with the stories we blogged would be the last.

I was able to make a home and a career on the internet because sites like Grantland,

Okayplayer, and Jezebel gave me license as a writer and thinker. They validated my

weirdness as much as they challenged my ways of thinking around gender politics, movies,

sports, and identity. Stumbling on responses by Greg Tate in the Okayplayer message

boards was its own masterclass in music and political theory. Before that, blogs like Crunk

& Disorderly, The Cynical Ones, and FreeDarko showed me how sweeping this territory

we called the internet was. They were proof that a single voice could take up space in a

unique and original tone.

My internet, the millennial internet, was a province of play and possibility. Of course, it’s

mostly all gone now. The trend toward consolidation is near complete. There is no happy

ending to this story. Journalists, editors, and media makers of all sorts are losing jobs. This

year seemed especially cruel to those of us who make a living in this fickle industry.

Independent media is a dwindling business model, a fate ominously true for niche

publications with an outsider’s eye.

The millennial internet died, perhaps for the final time, in April, when BuzzFeed News

closed shop. A week later, Traffic—a book by former editor-in-chief Ben Smith, about the

mad dash to reinvent digital media during this specific period—was published to

enthusiastic reviews, its release bookmarking the end to a decade colored by omnivorous

virality. By late fall, Vice downsized, Okayplayer fired its entire editorial staff, pivoting to

god knows what, and Jezebel, the pioneering feminist site, was forced to shut down. (It

was acquired by Paste in late November, saving it from an early death.) According to a

recent employment analysis, the news media sector lost more jobs this year than it did

across 2022 and 2021 combined.

The 2010s coincided with the mainstreaming of social media. Tumblr, Twitter, and Vine

broadened the reach of communication, amplifying a generation of voices that otherwise

would have gone unheard. These platforms were the engine of creativity before

everything was milked into sponsored content. That was then. This year, Tumblr

announced plans to significantly curb its operations. Under the ownership of Elon Musk,

Twitter, rebranded as X, has decayed into a petri dish of misinformation and harassment,

inciting an exodus from the platform. As for Vine, which discontinued in 2017, TikTok has

taken its place though it can never replicate its hypnotic charm.

YOU’RE PROBABLY WONDERING how we got here. How all of this happened. Don’t. It’s

a fool’s errand in a time of spectacular fools, crooks, and private equity monsters. My

internet is dying. It’s been dying for some time. Everything I knew about it will soon vanish,

its histories regurgitated via 60-second TikTok videos shared in group chats, eulogized

annually in the cocoon of darkened movie theaters, where tickets run $30.

The contours of the digital era are receding. So much of what I loved is gone or changed, its

parts sold for scraps. Why and how it had to be like this, I will never know. Greed or

mismanagement seem too cheap an answer even though I know it is one of them.

What is also true is how new technologies jockey to replace old ones. It’s how the game

works. Radio killed newspapers. TV killed radio. The internet killed them all. That’s how

the narrative goes, anyway. Today, as text-based tech fades into the hipster denim of the

2010s, video and audio reign dominant. That is, until it’s time to pivot to the next shiny

thing. We like what we like until we’re told to like something new.

Gawker shut down, for the second time, in February. When it happened, I was reminded of

what John Cook wrote in his memo the day I got let go. Gawker was pivoting to politics

with a mandate to “hump the campaign” (LOL). The plan failed, but not because of the

writers and editors who stayed, or management’s course correction (though that was also

a doomed enterprise). Hilary Clinton lost the election. Donald Trump won. Reality blurred

into vulgar theater. Theater so vulgar and unbelievable we’re still reeling from it.

Before it was first shot dead, in 2016, Gawker failed the way most digital media properties

of the millennial internet failed: by trying to fathom, and build a business model around,

something that is unfathomable—the way the internet works. Nick Denton, Gawker’s

muckraking founder, couldn’t hack it. Neither could Jonah Peretti. In truth, no one can.

Today I find solace in that atom of unpredictability. It’s the one lesson I’ve carried with me

since that day.

None of us have it figured out. We never will. Onward.

Explanation of the article:

Introduction

The author reflects on a pivotal moment in their career—the day Gawker

Media underwent a significant restructuring, leading to their layoff. This

event marked the end of an era, symbolizing the demise of the millennial

internet. Despite the challenges, the author reminisces about their time at

Gawker, where they played a role in shaping the site's diverse content and

fostering young talent.

The Evolution of the Internet

The article explores the transformative nature of the internet during the

millennial era, characterized by rapid changes and an emphasis on virality.

Platforms like Gawker and BuzzFeed epitomized this shift, leveraging various

content formats to capture audiences' attention. However, the internet

landscape was constantly evolving, driven by the introduction of social media

and changing consumer preferences.

The Decline of Independent Media

The author laments the decline of independent media outlets and the

broader trend toward consolidation in the industry. They highlight the

closure of iconic websites like The Awl and BuzzFeed News as emblematic of

this shift, signaling the end of an era marked by creative experimentation and

diverse voices. The author acknowledges the challenges facing journalists

and media makers in today's competitive and uncertain landscape.

Reflections on the Past

Reflecting on their personal journey, the author reminisces about the

influential role of internet platforms like Grantland, Okayplayer, and Jezebel

in shaping their career. These sites provided a platform for creative

expression and critical discourse, fostering a sense of community and

intellectual growth. However, the author acknowledges the inevitability of

change and the transient nature of digital media.

Conclusion

The article concludes with a somber reflection on the uncertain future of the

internet and the media industry. Despite the challenges and uncertainties,

the author expresses resilience and determination to navigate the evolving

landscape. They emphasize the importance of embracing change and

uncertainty, acknowledging that none of us have all the answers, but urging

readers to persevere nonetheless.

Article 10:

Try applying the TEST approach - Translate -> Explain -> Summarize

-> Think

A summary and explanation of the article is given at the end of this

document.

"It's surprisingly hard to think of nothing at all", is one of my first thoughts as I'm lying in

the maw of a machine that is scanning my brain. I was told to focus on a black cross while

the functional Magnetic Resonance Imagine (fMRI) machine does its noisy work. It also

feels impossible to keep my eyes open. The hum of the scanner is somewhat hypnotic, and

I worry a little bit that drifting off will affect how my brain appears on the resulting images.

As a science journalist I've always been fascinated by the workings of the mind, which is

how I found myself inside a scanner at Royal Holloway, University of London, to have my

brain examined before embarking on a six-week brain-altering course.

My goal was to investigate whether there's a way we can influence meaningful brain

change ourselves. By altering aspects of my daily life, I hoped to find out if it is possible to

strengthen crucial connections in our brain, and keep our mind healthier in the process.

Along the way I learnt techniques we can all use – with some powerful results.

Our brain has an incredible ability to adapt, learn and grow because by its nature, it is

plastic – that is, it changes. This is called neuroplasticity, which simply means the brain's

ability to adapt and evolve over time in structure and function. It was once thought to be

limited to youth but we now know it's a constant force in shaping who we are. Every time

we learn a new skill, our brain adapts.

Neuroscientists and psychologists are now finding that we have the power to control that

to some extent. And there's good reason to want to boost our brain – an increasing

number of studies suggest it can play a role in delaying or preventing degenerative brain

diseases.

So, with the help of Thorsten Barnhofer, a professor of clinical psychology at the

University of Surrey in the UK, that's what I set out to do. He's currently running a study

on the effects of mindfulness in managing stress and difficult emotions, with a special

focus on individuals with severe depression.

I was surprised that something as simple as mindfulness can play such a crucial role in

keeping our minds healthy. Research has shown that mindfulness is a simple but powerful

way to enhance several cognitive functions. It can improve attention, relieve pain and

reduce stress. Research has found that after only a few months of mindfulness training,

certain depression and anxiety symptoms can ease – though as with any complex mental

health problem, this may of course vary depending on individual circumstances.

There's more to it. Mindfulness can change the brain. That's because when the stress

hormone cortisol increases and remains high,"it can become toxic for your brain", says

Barnhofer. Stress can also directly inhibit neuroplasticity, so managing it allows the brain

to remain more plastic.

The question is, would this work in my brain? Over six weeks, Barnhofer modified a

mindfulness research course for me to try out. For 30 minutes a day, either as one single

session or two 15-minute sessions, I practiced a guided mindfulness meditation by

listening to a recording. In addition, I had one weekly meditation session with Barnhofer,

who guided me over Zoom. The full mindfulness course can be accessed online for free.

My instructions were to be as aware as possible to the present moment – and pay

attention to things I might usually ignore, such as where my thoughts go, and what

occupies my mind from moment to moment. He also encouraged me to be more mindful in

daily life – say when cooking or running, to really focus on the moment, bringing my mind

back to what I was doing, as well as noticing how often it wanders.

What's fascinating about this area of research is that mindfulness, which appears to be

such a simple process, can have a measurable effect."What mindfulness does is it can

buffer stress, you become aware of challenges and those more ruminative responses, a

tendency to worry," explains Barnhofer.

While I'm perhaps not an ideal candidate – my stress levels, which were measured before

and after the process, are generally low – I still felt a benefit. As soon as I started a session,

it felt like the first minute or two were easy. I would focus on my breath, or parts of my

body as instructed. But at any moment of silence I would find my mind going on

time-travelling journeys. I'd think about a conversation with a friend from weeks ago, then

flit within seconds to thinking about scheduling a dentist appointment, then next about an

upcoming work deadline… and so on. In quick succession, I could see just how rapidly my

mind shifted from thought to thought. Speed this up and it can become extremely

exhausting.

"Mind wandering is something that of course might be helpful in many ways," says

Barnhofer."It might help us with creativity, but it's also something that can go awry. And

this is where repetitive thinking comes in, where ruminative thinking comes in, where

worry comes in. And those are the factors which increase stress once it's there."

When I started to notice this, it made more sense that this brilliant ability we all have to

think ahead, to plan, to worry, can be debilitating if it goes into overdrive. In other words,

revealing the workings of our own mind is a crucial first step of letting go of some of that

busyness.

Throughout the six weeks I spent on this mindfulness course, I also spent time filming

other neuroscientists for my Brain Hacks documentary to see if there were concurrent

"hacks"I could implement.

For instance, evidence shows that both meditation and exercise boost plasticity. I didn't

increase my normal levels of exercise, but I did to push myself to run faster – regularly

running a 5k in my hilly local park in about 21 minutes. Knowing that this might help boost

my brain too, kept me motivated."Physical activity facilitates the procedure of plasticity,"

says Ori Ossmy, a lecturer in brain and cognitive development at Birkbeck, University of

London in the UK."If you combine it with cognitive tasks to improve skills you are

interested in, you probably will be able to do this in an enhanced way."

This makes sense given how closely the health of our bodies and our brains are tied

together, agrees Gillian Forrester, professor of comparative cognition at the University of

Sussex in the UK."Our physical health and mental health are absolutely tangled up

together to create a quality of life," she says.

Physical health is tied to cognitive health, too. It's by studying infants that scientists like

Forrester are learning to see the brain/body link in action.

In Birkbeck University's brand-new Baby Lab, Forrester showed me her latest project

called Baby Grow. The study will monitor babies' development in their first 18 months,

with the aim of spotting signs of cognitive disorders before they become apparent. And

the reason it's crucial to do it so early?It's tied to neuroplasticity too. A child's brain is

especially plastic in its early years of development – new neurological connections and

networks are being created at a frenetic pace as they grow and learn about their

environment. This means it's potentially much easier to apply interventions for those who

need it during this highly plastic state. This is one of the reasons why Forrester believes it

is so important to learn more about everyday processes that help mould the brain.

The same idea also comes into play when patients are recovering from serious brain

injuries. I met with Angelo Quartarone, the scientific director of the Centro Neurolesi

Bonino Pulejo, a centre for brain injuries in Sicily. He witnesses plasticity in action every

day."Even in the worst conditions the brain helps to repair itself in some way… With

neurorehabilitation we can accelerate recovery," he says. His team uses varied methods of

assisting rehabilitation, including robotics, virtual reality, and placing electrical currents

on the brain."A tiny amount of currents can interact with the same mechanisms which are

engaged by neurorehabilitation techniques," he says."So you have a double hit."

I was amazed to learn that one of his patients, who had lost power in their right limbs, was

able to forge new neural connections by playing simulated computer games. This helped

them to regain lost motor skills.

This type of brain enhancement is something we can all learn from. It's clear that

practicing new skills and regularly exposing ourselves to new situations all helps the brain

to continue to adapt and grow. That's how I found myself ordering sundried tomatoes in

Italian, getting a quick lesson on how to play a traditional Sicilian tambourine, before

sitting at the base of Mount Etna and meditating. Of course, I have to add a huge caveat.

I'm a sample size of one – and a lot of this was illustrative rather than scientific.

At the end of the six weeks, I was extremely curious to see if all this work had any effect on

my brain. After another brain scan, and some trepidation about what might have

happened inside my head in the intervening weeks, I visited Barnhofer at the University of

Surrey to find out. He had been analysing and comparing my two brain scans long into the

night.

There was a result: the structure of my brain had in fact changed. And there were a few

measurable changes to be seen.

One half of my amygdala – an almond-shaped structure important for emotional

processing – had reduced in volume on the right side. The change was minute but

measurable. However, what's exciting is that this aligns with the scientific literature that

shows mindfulness can reduce its size because it buffers stress seen in the amygdala.

When we experience increased stress, the amygdala grows. I didn't feel particularly

stressed to begin with, but even so, it was exciting to still see a change.

The other change was to my cingulate cortex, part of the limbic system that is involved in

our behavioural and emotional resonses. It is also important for the default mode

network, a region that becomes active when the mind wanders and ruminates. In my brain,

it had slightly increased in size over the six weeks, indicating increased control of that

area. Again, this chimes with published studies in the scientific literature.

It also resonates with what I had noticed during my sessions. Over time I found I was able

to keep my mind more restful – I was better able to zone out busy thoughts.

It was quite, if you will excuse the pun, mind-bending to see these results to my brain on a

big screen in front of me. Just by being mindful, I had managed to increase a part of my

brain that prevents my mind wandering too much.

A final note of caution – it is important to acknowledge that any brain changes we had

seen could also be random. The brain is constantly changing anyway. But nevertheless, the

studies suggest that the whole experience was a worthwhile challenge – and a process

many people could easily benefit from.

Of course, for the changes to be long lasting, it's clear I should keep pushing myself to do

some of these "hacks".

Am I going to continue meditate every day?I'd really love to say:"Yes of course." That is, if

life doesn't get in the way…

Explanation of the article:

Introduction

The author recounts their experience undergoing a brain scan using

functional Magnetic Resonance Imaging (fMRI) at Royal Holloway, University

of London, before embarking on a six-week brain-altering course. As a

science journalist fascinated by the workings of the mind, they sought to

explore whether it's possible to influence meaningful brain change through

daily life adjustments.

Neuroplasticity and Mindfulness

The article explores the concept of neuroplasticity, highlighting the brain's

remarkable ability to adapt and evolve over time. The author delves into the

role of mindfulness in enhancing cognitive functions, managing stress, and

promoting overall brain health. With guidance from experts like Thorsten

Barnhofer, they embarked on a mindfulness course, discovering its potential

to shape brain structure and function.

The Mind-Wandering Phenomenon

Throughout the mindfulness course, the author grappled with the challenge

of mind-wandering, realizing the detrimental effects of excessive rumination

and worry on mental well-being. By cultivating mindfulness and being

present in daily activities, they gained insight into the workings of their own

mind, fostering a greater sense of awareness and control.

Brain Hacks and Physical Activity

In addition to mindfulness, the author explores other "brain hacks," such as

regular exercise, that can enhance neuroplasticity and cognitive function.

They discover the interconnectedness of physical and cognitive health,

learning from experts like Ori Ossmy and Gillian Forrester about the

profound impact of lifestyle choices on brain development and recovery.

The Results of Brain Changes

After completing the mindfulness course, the author undergoes another

brain scan to assess any structural changes. The results reveal subtle but

significant alterations, including reductions in amygdala volume and

increased size of the cingulate cortex, indicating improved stress

management and enhanced control over the default mode network. Despite

acknowledging the possibility of random brain changes, the author views the

experience as a valuable journey toward better brain health.

Conclusion

The article concludes with reflections on the importance of maintaining

brain-boosting practices for long-lasting effects. While acknowledging the

challenges of integrating mindfulness into daily life, the author expresses a

desire to continue exploring these techniques despite the inevitable

demands of life. Overall, the journey underscores the transformative power

of mindfulness and lifestyle adjustments in promoting brain health and

well-being.

Article 11:

Try applying the TEST approach - Translate -> Explain -> Summarize

-> Think

A summary and explanation of the article is given at the end of this

document.

I have been doing couples and family therapy for over twenty-five years. I like it more than

individual counselling because you see the interplay and dynamic between people. My

clients mainly fall into two buckets: couples with kids under five and couples whose

youngest child has just left home.

The biggest change I’ve seen in relationships is the damn smartphone: texting, internet,

instant communication. Smartphones have caused more upheaval than anything I’ve seen

in my career. We’ve normalized them being intrusive and taking precedence when people

are lying in bed, playing Wordle or scrolling through TikTok rather than talking to each

other. And we’ve gotten used to communication being instantaneous when a healthy

relationship requires you to slow down and listen to each other. But our lives don’t really

allow for that; especially if you have young children, it’s often go, go, go.

When the COVID-19 pandemic started, I saw an immediate plummet in the demand for

counselling as many people went into survival mode. A lot of people can go into

emergency mode and do well with one another. But as time went on, people realized the

pandemic was going to last much longer. What I saw was a pressure cooker. Many existing

issues were in stasis as people hunkered down, and meanwhile, more things were being

stuffed into the pot. This put more pressure on families. Two years into the pandemic,

something shifted. That’s when I was getting inundated with people who were in crisis and

on the brink of divorce.

In the next few years, I think, we’ll see the aftershock of the pandemic on couples. I think

it’ll be coming in the next year or two, maybe three, especially for couples with younger

kids who lost time in school, or people who lost their jobs or had to start new careers. Will

the stress levels just keep going up with these couples until they break?

The lid of the pressure cooker is still too tight. Many of us have gotten used to new levels

of stress, and it’s had an enormous impact on couples. In this pandemic era, couples have

to reconsider the balance of power: Who’s working? Who’s the primary parent? And that’s

coming with a lot of renegotiations. At the start of the pandemic, I saw people fall into old

gender-role stereotypes without even talking about it—women giving up their careers to

stay home with the kids even though they made more money than their husbands. Instead

of saying we’re returning to normal, start asking, “What are we creating that’s going to

work and be healthy for couples, families, and kids?”

If there’s a silver lining, it’s that the pandemic has shone a light on mental health

awareness. Especially for younger generations, it seems to be much more normalized to go

to therapy. And as these people grow up, they’ll likely have much healthier relationships

because of it.

While there’s greater awareness of mental health issues, there’s still a lot of confusion

about what it means to treat them. People will often say, “Just go see a therapist.” But

that’s like saying, “Just go see a doctor.” Do you need knee surgery or do you have cancer?

Do you need an expert in depression or in couples therapy? You need someone who is

specialized. And when the house is already on fire, the only thing a therapist can do is get

out the fire extinguisher.

I can’t do any deep transformative work when the fire is raging. We need preventative

care. If people come in when something is starting to be an issue between them instead of

when they’re at a breaking point, I’d love that. Because then, in two or three sessions, you

can be good to go—see you later!

Explanation of the article:

Introduction

With over twenty-five years of experience in couples and family therapy, the author

reflects on the evolving dynamics of relationships. They note a significant shift

brought about by the omnipresence of smartphones, altering communication

patterns and priorities within relationships.

Impact of the Pandemic The COVID-19 pandemic further exacerbated existing

challenges within relationships, initially leading to a decrease in demand for

counseling as people entered survival mode. However, as time passed, the

prolonged stress of the pandemic acted as a pressure cooker, intensifying

underlying issues and driving many couples to the brink of divorce.

Future Outlook

Looking ahead, the author anticipates the aftershocks of the pandemic on couples,

particularly those with young children or facing job loss or career changes. They

emphasize the need for couples to renegotiate power dynamics and gender roles in

the face of evolving challenges.

Silver Lining and Mental Health Awareness Despite the challenges, the pandemic

has increased awareness of mental health issues and normalized therapy, especially

among younger generations. This increased awareness may lead to healthier

relationships in the future.

Importance of Preventative Care

The author stresses the importance of preventative care in maintaining healthy

relationships, urging couples to seek therapy at the earliest signs of issues rather

than waiting until they reach a breaking point. They emphasize the need for

specialized therapy tailored to the specific needs of each individual or couple.

Article 12:

Try applying the TEST approach - Translate -> Explain -> Summarize

-> Think

A summary and explanation of the article is given at the end of this

document.

In theory, Nate works 40 hours a week in the operations department at a major fintech

company. In reality, Nate works one hour a day at most. He moseys over to his computer

whenever he gets an alert on his phone that he’s got a task to complete. Otherwise, he

spends most of the day doing, basically, whatever he feels — he sleeps in, he watches TV,

he does household chores. His only real restriction is that he can’t stray too far from home

in the event he is needed for something.

“I don’t have a problem with being asked to do work; it’s just I’m not really being asked,” he

says. Maybe he could take more initiative and try to take on more, but he gets good

performance reviews and raises as it is, so he figures, why bother? Plus, it’s not like he can

waltz up to his boss to announce there’s no real business reason for his existence. “How do

I initiate that conversation that’s, ‘Hey, I haven’t been doing much of anything this whole

time, I need more to do’? You don’t really want to draw attention to it,” says Nate, which is

a pseudonym. Vox granted him anonymity to speak for this story for obvious reasons, as

we did all of the workers interviewed.

Strongly suspecting that a certain person isn’t doing much, or not nearly enough to fill up

what is ostensibly an eight-hour day, seems to be a near-universal work experience. Many

people have also, at some point in time, been that less-than-occupied worker. Sometimes,

it’s intentional. Other times, like in Nate’s case, that’s just how the corporate cards have

been dealt.

These jobless employed are a persistent presence in the working world, their existence a

bug that’s become a feature. There’s a percentage of every job that’s bullshit, and in their

case, that’s 90 percent, minimum.

“It’s not good for the culture. It can engender huge resentment from the person’s

colleagues, especially if they themselves are overworked, and you do see that combination

a lot,” says Alison Green, a career columnist and expert who runs the website Ask a

Manager. “It also raises questions for people about whoever is supposed to be managing

that person. Are they incompetent? Do they suck at managing?”

Nate doesn’t think his boss or anyone is really aware of the problem — his company laid off

hundreds of workers earlier this year, and he made it through. He shows up at office social

events once a month to put in face-time and is generally well-liked. He’s read stories about

companies tracking remote workers to make sure they’re actually working but feels pretty

confident his company isn’t. “If we did,” he says, “I don’t think I’d be employed.”

So for now, like many people, his jobless employment status continues. And he’s not alone.

Reporting for this story, I spoke with multiple people who are essentially funemployed, or

at least one meaning of it, who sit around at work all day with very little to do. What was

most surprising was that many did not exactly love the situation and felt somewhat

conflicted.

Take Charlie, a data scientist at a financial company. For his first few years at the firm, he

was pretty busy, but after his last promotion about five years ago, his workload has

dwindled. He’s not super motivated to change the situation, though he worries this will

ultimately be detrimental to his career. “I feel like I’m falling behind,” he says. “I definitely

want to move to a different company, and I’m hopeful that when I do that, my work and my

mindset will change.”

“I ALMOST WISH THAT I COULD GET LAID OFF AND HAVE A GENEROUS SEVERANCE

PACKAGE”

The Thursday and Friday prior, he worked from home and “literally did not do a second of

work.” The following week, on a day he was working from the office, he read two chapters

of his novel and took a small nap. The day we spoke, he took the call — which was about

how he wasn’t working — from his office. “Whenever I work from home, it’s easier to go

work from my couch or lay down or do whatever, go on my PC a little bit. Even in my office

here, and actually today there are a bunch of people for some reason, but it’s normally

pretty empty. It’s not like I have the peer pressure of people working around me,” he says.

Charlie’s company cut workers this year, but he wasn’t really worried about it one way or

the other. “I almost wish that I could get laid off and have a generous severance package,”

he says. “That wouldn’t be the worst thing in the world.”

One engineer told me he’s enjoying the freedom of having an incredibly light workload,

but he knows it won’t go on forever. He also has to be intentional about keeping up his skill

set so he doesn’t get too rusty. “I forget how to do stuff that I knew how to do,” he says.

One government affairs representative says she completes the work for her eight-hour

shift in two to three hours each day, which, again, is nice, but is also unsettling. “I get paid,”

she says, “but I feel useless and like I could be doing more.”

Green believes it’s not uncommon for people in these jobless employment situations to

have complicated feelings about it. They feel guilty, or they get bored, or they’re paranoid

they’ll get caught. “They worry that at some point someone’s going to notice,” she says.

To be sure, not everyone feels bad. Tom, who works in sales, appears to be a bit of an

expert in getting paid for work he’s not doing. His boss at his last job forgot to inform HR

that he’d quit, so he collected a paycheck from the company for a while before anyone

figured it out. Now, at his new job, the company doesn’t even know where he’s based —

he’s in the United Kingdom, they think he’s in Kentucky — and there’s minimal oversight.

“I’m able to slip through the cracks most of the time,” he says. If someone asks what he did

over the weekend, he’ll say he went to the Kentucky Derby or something, because he

doesn’t want anyone getting suspicious.

“I’VE TRIED AT WORK BEFORE, AND IT JUST WASN’T WORTH IT”

He works commission and, suffice it to say, rarely meets or exceeds sales targets. So when

he’s looking for jobs, he adjusts accordingly. “I search for jobs with the highest and most

generous base salary for obvious reasons,” he says. He’s not losing sleep over his ruse — he

says his mental health is great. “I’ve tried at work before, and it just wasn’t worth it.”

From the outside, it can be a little hard to square how to feel about this. On the one hand,

if someone’s getting a paycheck and doing very little, it’s sort of a good-for-them scenario.

On the other hand, it can engender resentment, especially among their colleagues who

aren’t so oblivious to what’s going on.

“These people are often kind of gadflies, they’re hanging around the coffee machine,

they’re stopping by people’s desks, and they become the subject of urban legends a little

bit,” says Joseph Fuller, a professor of management practice at Harvard Business School.

“It’s a phenomenon that’s been widely witnessed, let’s put it that way.”

Pretty much everybody has at least one person at work where they look at them and

think, “Seriously, what in the world does that guy even do? And how does no one notice???”

It can be even more baffling when those people keep advancing, which they often do.

Promoting the incompetent has been a thing for a long time.

Blame the boss

There are endless reasons why people at work wind up with little, if anything, to do.

Maybe the project they were hired for is no longer a priority, or the tasks they were in

charge of, by and large, are now being handled by technology. Maybe they never should

have been hired in the first place, or they were brought on board too soon. Maybe they’re

super fast at their jobs, or they’re really good at being secretly lazy, hiding in plain sight.

Whatever the context, the boss is often to blame. The biggest component of how this

happens is poor management.

“You get managers who are either so disengaged that they truly are oblivious to the

situation, they’re so disconnected from the work that they don’t have any sense of what

the person is or isn’t doing or results they should be getting that they’re not getting,”

Green says, “or you get a manager who does have a general sense of it that is so passive

and nonconfrontational that they can’t bring themselves to do anything about it.”

It may be the case that someone’s manager is cut — part of why laying off middle managers

can be a problem — so they don’t have a real direct boss anymore who knows what they’re

supposed to do. Perhaps their new boss is too swamped to pay attention, or they just don’t

really care as long as the company’s making money. It might also be the case that their

boss, new or old, isn’t doing much, either.

Bobby, an engineer at a tech company who’s been sitting on his hands for about a year,

says his supervisor seems really busy with meetings, so he doesn’t think he has much time

to notice beyond some vague conversations about “utilization” every once in a while. “I

feel like his plate is full, unless he’s doing a similar trick where he has the appearance of

motion,” he says. “I haven’t drilled into it, but it’s always in the back of my mind. Is he really

working as hard as he says he is?”

“IT’S LIKE BEING ON VACATION ALL THE TIME”

Bobby was brought on too soon — the division he was hired for wasn’t even remotely close

to needing engineers to do actual work. So he spends his day doing research and

development for his own tech projects. When he doesn’t feel like doing anything, he goes

hiking or swimming or plays video games and watches movies. He gets to spend more time

with his kids.

“It’s like being on vacation all the time, with occasional scrambling to do a thing, then doing

the thing for a couple of hours, then going back to the rest of my life,” he says. “Even

though I feel guilty about it sometimes ... it’s not really my job to tell a multinational

company how to run a business or manage their employees.”

The experts concur. “At the end of the day, it’s the company’s responsibility, the leader’s

responsibility, to manage their workforce and know who’s doing what and where and

what’s the output,” says Bryan Creely, the career coach who coined the term “quiet

quitting.”

Change is hard, even when companies need to change

As much as the private sector is supposed to be able to move fast and adjust, that’s just

not the case. Change isn’t easy. Sometimes, a position just exists because it always has.

Certain processes have certain roles in them, and nobody wants to take the time to

scrutinize whether those roles are still needed.

Fuller, the Harvard professor, offered up a hypothetical example. “There’s a checker to

check checkers, and we don’t need that anymore, but there’s a position called ‘Check

Checker,’ and we’ve always had one. It’s on the succession plan, it’s on the promotion path,”

he says. “The process that person is in and the job they’re in is an artifact of the way the

process was designed, the way the budget was set, the assumptions about how the

process works as opposed to how it actually works.”

A lot of white-collar work is related to risk aversion and having several eyes on decisions

or processes, so there is some kind of built-in excess capacity by design. It’s a margin of

safety, even though said margin can be excessive. Whether or not leaders know that,

adjusting can be harder than leaving things as is.

“Managers may well realize they’re not using their staff well, but whether they do or they

don’t, it just gets really hard to change those processes without somebody making that

their priority,” says Carrie Bulger, a Quinnipiac University psychology professor who

specializes in industrial-organizational psychology. “If it doesn’t feel like it’s broken, then

no one’s going to make noise about fixing it.”

There’s no way to say, “Hey, I’m just chilling, or I think the guy over there is”

Remote work makes it easier to get away with not doing much because there’s no one

looking over your shoulder to see what’s happening. It also makes it more palatable — you

can find a lot more ways to entertain yourself during the day from your house than you

can from your cubicle. Still, bosses should be able to tell the difference, wherever a worker

is located. “If you have managers who know how to manage effectively ... it shouldn’t be

any easier for someone to slack off,” Green says.

Being in the office does not guarantee you’re working, either. People slacking off on the

job long predates remote work.

Marty, a policy analyst at a federal agency, goes into the office every day, though he

generally stays until about 2 pm — his boss doesn’t come in often, anyway. He uses his

extra time to practice music and read. He and his colleagues, many of whom are also

bored, will sometimes pick research papers to discuss to pass the time.

“WHAT’S IRONIC IS THAT I’M SEEN AS THE HIGH PERFORMER ON THE TEAM”

He’s not concerned someone will notice what he’s up to because he can just close his office

door. Plus, he’s got a mouse jiggler. “What’s ironic is that I’m seen as the high performer on

the team, and I’m also confused,” he says. “I think it’s because they’re also just making up

stuff to do as well.”

To the extent that this is an issue that needs fixing — which is debatable — there aren’t any

easy answers. Experts say it is generally a bad idea to rat out a colleague who’s not doing

work unless it’s really impacting you, and it can be a very bad idea to rat out yourself. You

can try, but it’s tough.

“If you go in and say, ‘Hey, I’m underutilized right now,’ you’re basically putting a target on

your back,” Creely says. “It sounds good on paper — you get paid to do nothing — but

especially if you’re not well-connected, eventually that’s going to come to an end.”

Tom has no plans to alert his employer to his circumstances, nor is he super concerned

about what his habit of picking up workless jobs will mean for his career. People would be

surprised to see how easy it is to get positive references from other departments when it’s

time to move on to the next job, and he really doesn’t think anyone has picked up on what’s

going on. “I don’t think I’ve ever really occupied one minute of somebody’s headspace,” he

says. “As long as you’re nice and polite and can manage to forward the right things to the

right people.”

Explanation of the article:

Introduction

The article delves into the experiences of employees who find themselves with

minimal work to do during their ostensibly full workdays. Through interviews with

various workers, it explores the phenomenon of"jobless employment" and the

complex emotions it evokes.

Employee Experiences

The article features anecdotes from individuals like Nate, Charlie, and others who

spend their workdays with little to no tasks to occupy their time. While some, like

Nate, feel conflicted about their situation and worry about their career

progression, others, like Tom, have found ways to navigate the system and maintain

their positions with minimal effort.

Challenges and Complications

Jobless employment poses challenges for both employees and organizations,

contributing to feelings of guilt, boredom, and paranoia among workers. However,

addressing the issue is not straightforward, as it often stems from systemic issues

such as poor management and outdated job roles.

Remote Work Dynamics

Remote work has made it easier for employees to slack off without direct

oversight, leading to a rise in jobless employment situations. However, being

physically present in the office does not guarantee productivity, as evidenced by

Marty's experience of practicing music and reading during work hours.

Potential Solutions

While there are no easy solutions to the problem of jobless employment, experts

advise against reporting colleagues unless their lack of work directly impacts

others. Additionally, employees must navigate the delicate balance of advocating

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Article 13:

Try applying the TEST approach - Translate -> Explain -> Summarize

-> Think

A summary and explanation of the article is given at the end of this

document.

The concert is in London. You're watching it live from your home in Atlanta. What makes

that possible is a network of subsea cables draped across the cold, dark contours of the

ocean floor, transmitting sights and sounds at the speed of light through strands of glass

fiber as thin as your hair but thousands of miles long.

These cables, only about as thick as a garden hose, are high-tech marvels. The fastest, the

newly completed transatlantic cable called Amitié and funded by Microsoft, Meta and

others, can carry 400 terabits of data per second. That's 400,000 times faster than your

home broadband if you're lucky enough to have high-end gigabit service.

And yet subsea cables are low-tech, too, coated in tar and unspooled by ships employing

basically the same process used in the 1850s to lay the first transatlantic telegraph cable.

SubCom, a subsea-cable maker based in New Jersey, evolved from a rope manufacturer

with a factory next to a deep-water port for easy loading onto ships.

Though satellite links are becoming more important with orbiting systems like SpaceX's

Starlink, subsea cables are the workhorses of global commerce and communications,

carrying more than 99% of traffic between continents. TeleGeography, an analyst firm that

tracks the business, knows of 552 existing and planned subsea cables, and more are on the

way as the internet spreads to every part of the globe and every corner of our lives.

You probably know that tech giants like Meta, Microsoft, Amazon and Google run the

brains of the internet. They're called "hyperscalers"for operating hundreds of data

centers packed with millions of servers. You might not know that they also increasingly

run the internet's nervous system, too.

"The whole network of undersea cables is the lifeblood of the economy," said Alan

Mauldin, an analyst with TeleGeography."It's how we're sending emails and phone calls

and YouTube videos and financial transactions."

Two thirds of traffic comes from the hyperscalers, according to Telegeography. And the

data demands of hyperscalers' subsea cable is surging 45% to 60% per year, said SubCom

Chief Executive David Coughlan."Their underlying growth is fairly spectacular," he said.

Hyperscalers' data demands are driven not just by their own content needs, like Instagram

photos and YouTube videos viewed around the world. These companies also often operate

the cloud computing businesses, like Amazon Web Services and Microsoft Azure, that

underlie millions of businesses' global operations.

"As the world's hunger for content continues to increase, you need to have the

infrastructure in place to be able to serve that," said Brian Quigley, who oversees Google's

subsea and terrestrial networks.

The first subsea cables spanned major communication routes like London to New York.

Those remain critical, but newer routes are bringing bandwidth far off the beaten track:

the west coast of Greenland, the volcanic island of St. Helena west of Africa, the southern

tip of Chile, Pacific island nations, the 8,000-person town of Sitka, Alaska.

It's all part of a gradual transformation of subsea communications. Where once cables

were the exception, linking a few high-priority urban centers, now they're becoming a

world-spanning mesh. In other words, despite high costs and exotic technology, subsea

cables are coming to resemble the rest of the internet.

"The whole network of undersea cables is the lifeblood of the economy. It's how we're

sending emails and phone calls and YouTube videos and financial transactions."

Alan Mauldin, TeleGeography analyst

But as more internet traffic traverses subsea cables, there's also reason to worry about

them. The explosive sabotage last year of the Nordstream 1 and 2 natural gas pipelines

connecting Russia and Europe was much more logistically difficult than cutting an internet

cable the thickness of your thumb. An ally of Russian leader Vladimir Putin said subsea

cables are fair game for attack. Taiwan has 27 subsea cable connections that the Chinese

military could see as tempting targets in an attack.

"There's a lot of talk these days about how space is the next contested domain. But I think

undersea is going to be very much a contested domain," said Steve Bowsher, president of

In-Q-Tel, a CIA-backed nonprofit that invests in startups on behalf of the CIA, FBI, NSA

and other US government agencies."Those are going to be targets in any sort of kinetic

conflict."

The risks are vivid: Vietnam's internet performance suffered thanks to outages on all five

of its cables for months earlier this year, and the volcanic explosion on the island of Tonga

severed it from most communications for weeks.

But those risks are dwarfed by the very real benefits, from the macroeconomic to the

purely personal. The network is growing more reliable and capable with faster speeds and

a surge in new cables extending the network beyond today's 870,000 miles of routes, and

that'll coax more and more countries to join.

That makes the internet richer and more resilient for all of us — including you getting work

done and finding entertainment after the workday's over.

Why subsea cables are reaching everywhere

The economic advantages are considerable. Subsea cable links mean faster internet

speeds, lower prices, a 3% to 4% boost in employment and a 5% to 7% boost to economic

activity, McKinsey estimates.

At the same time that hyperscalers' traffic demands were surging, the

telecommunications companies that traditionally installed subsea cables pulled back from

the market.

Workers connect a SubCom cable, buoyed by orange floats, from a cable-laying ship in the

distance to a landing site on a beach.

A SubCom cable undergoes installation, between the cable-laying ship in the distance and

a landing site on the beach. Later, the orange floats will be removed and the cable buried

so it's no longer visible.

"Roughly 10 years ago, a lot of the traditional telco providers started to really focus on

wireless and what was happening within their last-mile networks," said Frank Rey, who

leads hyperscale network connectivity for Microsoft's Azure cloud computing business.

The wait for new cables grew longer, with the planning phase alone stretching to three to

five years. The hyperscalers needed to take control.

Hyperscalers initially began with investments in others' projects, a natural move given

that subsea cables are often operated by consortia of many allies. Increasingly,

hyperscalers now build their own.

The result: a massive cable buildout. TeleGeography, which tracks subsea cables closely,

projects $10 billion will be spent on new subsea cables from 2023 to 2025 around the

world. Google-owned cables already built include Curie, Dunant, Equiano, Firmina and

Grace Hopper, and two transpacific cables are coming, too: Topaz this year and, with AT&T

and other partners, TPU in 2025.

Such cables don't come cheap: A transatlantic cable costs about $250 million to $300

million to install, Mauldin said.

The cables are critical. If one Azure region fails, data centers in another region come

online to ensure customers' data and services keep humming. In the US and Europe,

terrestrial cables shoulder most of the load, but in Southeast Asia, subsea cables

dominate, Rey said.

With the hyperscalers in charge, pushing data instead of voice calls, subsea networks had

to become much more reliable. It might be a minor irritation to get a busy signal or

dropped call, but interruptions to computer services are much more disruptive."If that

drops, you lose your mind," Coughlan said."The networks we make today are dramatically

better than what we made 10 years ago."

The number of subsea internet cables has surged. By 2025, a total of 552 should be

operational.

The origin story of subsea communications

Today's cables send up to 250 terabits per second of data, but their technology dates back

to the 1800s when scientists and engineers like Werner Siemens figured out how to lay

telegraph cables under rivers, the English Channel and the Mediterranean Sea. Many of

the early cables failed, in part because the weight of a cable being laid on the bottom of

the ocean would rip the cable in two. The first transatlantic cable project that succeeded

operated for only three months in 1858 before failing and could only send just over one

word per minute.

But investors eager to cash in on rapid communications underwrote the development of

better technology. Higher copper purity improved signal transmission, stronger sheathing

reduced cable breaks, repeaters installed periodically along the cable boosted signal

strength and polyethylene insulation replaced the earlier rubberlike material harvested

from gutta-percha trees.

Telephone calls eventually replaced telegraph messages, pushing technology further. A

transatlantic cable installed in 1973 could handle 1,800 simultaneous conversations. In

1988, AT&T installed the first transatlantic cable to use glass fiber optic strands instead of

copper wires, an innovation that boosted capacity to 40,000 simultaneous phone calls.

A subsea internet cable, sliced to show a cross section of its fiber optic lines for data

transfer, steel cabling for strength, copper for power distribution and plastic for insulation

and protection.

A subsea internet cable from manufacturer SubCom shows, from the center outward, its

optical fibers for data transfer, steel cabling for strength, copper for power distribution

and plastic for electrical insulation and protection.

SubCom's subsea cable factory dates back to its rope-making roots in the 1800s."Most

rope in that time was used on ships or needed to be transported by ships," CEO Coughlan

said."A factory on a deep port, with quick access to the ocean and with winding

capabilities, is what was needed to transform into the telephone cable business."

The tech inside subsea cables

Fiber optic lines transmit data as pulses of laser light. As with terrestrial fiber optic lines,

using multiple frequencies of light — colors, to you and me — means more data can be sent

at once. Network equipment ashore at either end of a cable encodes data into the light for

transmission and decodes it after it's received.

Fiber optics are great for fast broadband and long-haul data transmission, but the

technology has its limits. That's why there's a big bulge in the cable every 30 to 60 miles

called a repeater, to boost the signal strength.

Repeaters require power, though, and that's where another part of the cable construction

comes into play. Outside the fiber optic strands, a copper layer carries electricity at up to

18,000 volts. That's enough to power repeaters all the way across the Pacific Ocean just

from one end of the cable, though power typically is available from both ends for greater

reliability.

Why not keep raising the laser power, so you don't need repeaters as often? Because

boosting it too high would eventually melt the fibers, said Brian Lavallée, a senior director

at networking technology giant Ciena.

His company makes the network equipment at either end of the subsea cables, employing

different data encoding methods — manipulating light waves' frequency, phase and

amplitude — to squeeze as much data as possible onto each fiber.

"We've been able to get very, very close to the Shannon limit, which is the maximum

amount of information you can send down a communication medium," Lavallée said.

How ships install subsea cables

Companies installing a cable start by picking a route, surveying the route to dodge marine

problems like nature preserves, rough seafloor and other cables. When multiple countries,

telecommunications firms and businesses are involved, finding an agreeable route and

obtaining permits can be very complex.

The cables themselves are gradually paid out from specialized ships. That isn't as simple as

unspooling your string when you're flying a kite on a windy day.

Fiber optic strands are narrow, but subsea cables are thicker, heavier and bulkier. They're

stored in metal cylinders that wind and unwind the cables as they're moved from shore to

ship or from ship to ship. A single ship's three "tanks" can hold 5,000 tons of cable, which

works out to about 1,800 miles of lightweight cable and 600 miles of cable that's been

armored for busy waters.

SubCom has to figure out the installation order for each cable segment and make sure that

when installation begins, the right end of the cable is at the top of the coil. That means

before loading onto the ship, while the cable is stored at SubCom's depot, it must be

stored "flipped"the other way up. It reverses direction to the correct configuration as it's

transferred loop by loop onto the ship, SubCom's Coughlan said.

That's already complicated, but weather, permits or other concerns can force changes to

the installation order. That can require flipping a cable at sea with two ships side by side. In

a very digital business it turns out to be a very analog problem trying to account for

factors like the ships lurching on the open ocean and the cable's weight and bending limits.

"We have one guy in particular that's just a savant at this," Coughlan said."He has to be

able to solve it with his hand with string first, because we found the computer modeling

never works."

Near shore, cables are armored with steel cable and buried in the sea floor with a special

plow towed behind the ship. The plow pulls up into the water any time the new cable

crosses another that's already installed. In the deeper ocean, where fishing equipment and

anchors aren't a problem, the cable has less protection and is simply laid on the bottom of

the sea floor.

Fixing severed subsea cables

Subsea cables are pretty tough, but every three days or so, one gets cut, TeleGeography

said. The primary culprits, accounting for about 85% of cuts, are fishing equipment and

anchors. Ships often will anchor themselves to ride out storms, but the storms push the

ships and they drag their anchors.

Most of the other cuts are from the Earth itself, like earthquakes and mudslides. Tonga,

whose single subsea cable connection was severed by a volcanic eruption, is another

example.

Human-caused climate change, which is creating more extreme storms, worries

Microsoft's Rey."What keeps me awake at night is large-scale climate events," he said. In

2012, Hurricane Sandy cut 11 of the 12 high-capacity cables that connected the US and

Europe, he said.

Most cuts occur closer to land, where boat traffic is higher and water is shallower. There,

cables are clad in metal armor and buried in the sea floor, but even so, cable cuts are a

matter of when, not if. At any given moment, more than 10 cables are typically cut around

the world, Google's Quigley said. The worst season for outages is October to December

because of a combination of harsher weather and fishing activity.

Cable operators can pinpoint cable cut locations, but repair ships often must await

government permits. Repairs average two weeks, Rey said, but three or four is common,

according to.marine cable division chief Takahiro Sumimoto of Japanese

telecommunications power NTT. After the Fukushima earthquake of 2011, it took two

months.

"It was too deep, and the cable was cut into pieces," Sumimoto said.

Subsea cables are high-tech creations, but fixing them employs devices like grapnels

invented hundreds of years ago. This holding grapnel is used to retrieve the ends of cut

cables resting on the ocean floor.

The repair requires a ship to fish up one end of the broken cable, often latching on with the

same kind of grappling equipment that's been used for centuries. The ship floats that end

of the cable with a buoy while the other end is retrieved. The ship splices the optical fibers

back together, with splices housed in a thicker package.

Faster new subsea cable tech

With cables so expensive to install, there's a strong incentive to pack in more data. There's

plenty of room for more optical fibers, but that approach is limited by the need for

electrical power for the repeaters.

Today's new cables use 16 pairs of fibers, but a new cable that NTT is building between the

US and Japan employs 20 fiber pairs to reach 350Gbps. Another Japanese tech giant,

NEC, is using 24 fiber pairs to reach speeds on its transatlantic cable to 500Tbps, or a half

petabit per second.

"Especially after the pandemic, we observed a capacity shortage everywhere. We urgently

need to construct new cables," Sumimoto said."The situation is a bit crazy. If we construct

a cable, the capacity is immediately sold out."

Along with the new cable installations, sometimes older cables can be upgraded with new

network hardware. A recent Ciena upgrade quadrupled the capacity of fiber optic lines

without changing anything underwater, Lavallée said.

"The networks we make today are dramatically better than what we made 10 years ago."

David Coughlan, CEO, SubCom

Microsoft also is betting on a fundamental improvement to optical fibers themselves. In

December, it acquired a company called Lumenisity developing hollow fibers with a tiny

central tube of air. The speed of light in air is 47% faster than in glass, a reduction to the

communication delay known as latency that's a key limit to network performance.

Transpacific cables have a latency of about 80 milliseconds. Cutting latency is important

for time-sensitive computer interactions like financial transactions. Microsoft also is

interested in hollow fibers for shorter-haul fiber optic lines, since lower latency effectively

brings data centers closer together for faster fallback if one fails.

Also coming are fibers with multiple data transmission cores inside instead of just one.

"We can't get much more improvement in bandwidth over a single fiber," TeleGeography's

Mauldin said.

A portion of Google's TPU cable will use two-core fibers, the company confirmed, but

that's only a first step. Fiber optic company OFS announced four-core fiber optics this

year and sees a path to subsea cable capacity of 5Pbps. That's 20 times more data than

today's new cables.

Geopolitical tensions with subsea cables

There's only one internet, but strains can show when it connects countries that are at

odds, for example when the Chinese government blocks Google and Facebook or US

companies sever their connections to Russia's internet. These techno-political tensions

have spread to the world of subsea cables.

The US effectively blocked three cables that would have directly linked China and the US,

causing them to reroute to other Asian nations. And the US has worked to sideline HMN

Tech, a Chinese subsea cable installation and maintenance company that grew out of

Huawei, according to a report by The Financial Times.

But with many other countries in Southeast Asia, there are many indirect connections,

with more to come."There are 17 new intra-Asian cables that are currently in the works,

and many more that haven't been announced yet," TeleGeography analyst Tim Stronge

said in a June blog post. And when it comes to internet routing rules that govern the flow

of traffic around the world, there are effectively open borders. In other words, the

internet itself doesn't care much about where exactly the cables go.

The new geopolitics has complicated business for SubCom, which serves the US military

as well as private companies like Google.

"A lot of governments exert their power in ways they had in the past," Coughlan said, and it

isn't just the China-US issue. Several countries, including Canada and Indonesia, are

enforcing cabotage laws that require work done in their territorial waters to be done by a

sovereign ship of that nation.

A black subsea cable coiled several meters deep in a broad cylindrical"tank"inside a

cable-laying ship. A person walking on top of the coil is dwarfed by it.

Cable-laying ships hold hundreds of miles of cable spooled up inside three "tanks." Note

the scale showing this tank to be 7 meters (22 feet) deep.

"This is leading to a lot of complications around the duration of permits and how to

perform the work," Coughlan said."Because of these cabotage laws, cables are harder to

put in. They take longer. Some of these countries only have one ship, and you have to wait

to get it."

But ultimately the economic incentives to build the cable usually prevail.

"Whatever big dustups there are going to be — trade wars, actual wars — when it gets to

the local level, the local countries want these cables," SubCom's Coughlan said."That's the

only reason this gets built."

Vulnerabilities in subsea cables

Cable vulnerabilities are real. Anchors and fishing equipment are the main risks,

particularly in crowded corridors where there are multiple cables. The cables are designed

to thwart corrosive salt water, not an attacking human.

"It would not take much to break these cables. And a bad actor could do it," Coughlan said.

A 2017 think tank paper by Rishi Sunak, who's since become prime minister of the UK,

concluded that subsea cables are "indispensible, insecure."

In a 2021 report, the Center for a New American Security, a bipartisan national security

think tank, concluded that subsea cables are vulnerable. It simulated Chinese and Russian

military actions using adversarial"red teams."In these simulations, Chinese attacks cut off

Taiwan, Japan, Guam and Hawaii, but Russian attackers had a harder time thanks to the

large number of Atlantic subsea cables.

"In CNAS wargames, Chinese and Russian red teams launched aggressive attacks on

undersea cables, specifically where they 'land' ashore. In nearly every case, these attacks

allowed red teams to disrupt and degrade US, allied, and partner communications, and

contributed to confusion and distraction at the strategic level as governments were forced

to respond to sudden losses of connectivity," CNAS senior fellow Chris Dougherty said in

the report.

The Marea cable from Microsoft and Meta is high-tech enough to carry 200 terabits of

data per second, but employs centuries-old nautical technology too: It's coated in tar.

Sunak recommended a treaty to protect cables, NATO wargames to better understand

their importance, and sensors on the cable to better detect threats. The most practical

advice, though, was simple: build more cables for geographic diversity and redundancy.

Making the subsea network more resilient

Given the importance and vulnerability of subsea cables, it's no surprise there's a race

afoot to make the technology more robust.

That's why there's a major push to expand to new landing sites. When Hurricane Sandy

struck, all the most powerful transatlantic cables landed in New York and New Jersey.

Now more leave from Massachusetts, Virginia, South Carolina and Florida.

"If you run all cables on the same path, you're an anchor drag away from multiple cables

being brought down," Quigley said.

Often, operators will swap capacity on each others' cables, access that gives each a

fallback data pathway if their cable is cut. Effectively, they're not putting all their

communication eggs in one cable basket.

"People are trying to build resiliency into the system,"In-Q-Tel's Bowsher said.

Ultimately, the geographic diversity Sunak seeks is becoming a reality, boosted by better

branching technology that makes multistop cables economical. The new Sea-Me-We 6

cable stretches from France to Singapore by way of 17 other countries. And new cables

are being built to connect Europe, Africa, the Middle East, Asia, the Americas and many

island nations.

"They're all over the world," Ciena's Levallée said."There is truly a mesh of these cables."

Explanation of the article:

Importance of Subsea Cables

Subsea cables are described as the "workhorses of global commerce and

communications," carrying over 99% of traffic between continents.

Tech Giants' Role

Tech giants like Meta, Microsoft, Amazon, and Google not only operate the

internet's infrastructure but also increasingly control its nervous system by

investing in subsea cables.

Growing Demand

With the increasing demand for content and cloud computing services,

hyperscalers' data demands are surging, driving the need for faster and more

reliable subsea cables.

Expansion of Cable Routes

While traditional routes like London to New York remain critical, newer routes are

extending to remote areas such as Pacific island nations and Sitka, Alaska.

Challenges and Risks

Despite their importance, subsea cables face challenges and risks, including

geopolitical tensions, potential sabotage, and natural disasters. However, efforts

are being made to enhance their resilience through geographic diversity and

redundancy.

Technological Advancements

Technological advancements, such as hollow fibers and multiple data transmission

cores, aim to increase the capacity and efficiency of subsea cables.

Installation and Maintenance

Installing and maintaining subsea cables involve complex processes, including route

surveying, cable laying, and repair operations. Challenges include avoiding marine

obstacles, dealing with cable cuts caused by anchors or natural disasters, and

obtaining government permits for repairs.

Geopolitical Considerations

Geopolitical tensions can impact the deployment and operation of subsea cables,

with countries like the US taking measures to protect their interests and secure

critical infrastructure.

Future Outlook

Despite the challenges, there is optimism about the future of subsea cables, with

ongoing investments in new cables, improved technology, and efforts to enhance

their resilience and reliability.

Shahzar’s Note:

This is a pretty long article, and you should not expect to see something this long on

your CAT. The purpose behind sharing this is twofold:

1. You learn how to retain information better and why exactly ‘writing down’

summaries is recommended in the classes.

2. You learn to sit through long, boring texts - something you will have to do

since not all the RCs will be from familiar topics on CAT.

Article 14:

Try applying the TEST approach - Translate -> Explain -> Summarize

-> Think

A summary and explanation of the article is given at the end of this

document.

I was a wayward kid who grew up on the literary side of life, treating math and science as if

they were pustules from the plague. So it’s a little strange how I’ve ended up

now—someone who dances daily with triple integrals, Fourier transforms, and that crown

jewel of mathematics, Euler’s equation. It’s hard to believe I’ve flipped from a virtually

congenital math-phobe to a professor of engineering.

One day, one of my students asked me how I did it—how I changed my brain. I wanted to

answer Hell—with lots of difficulty! After all, I’d flunked my way through elementary,

middle, and high school math and science. In fact, I didn’t start studying remedial math

until I left the Army at age 26. If there were a textbook example of the potential for adult

neural plasticity, I’d be Exhibit A.

Learning math and then science as an adult gave me passage into the empowering world

of engineering. But these hard-won, adult-age changes in my brain have also given me an

insider’s perspective on the neuroplasticity that underlies adult learning. Fortunately, my

doctoral training in systems engineering—tying together the big picture of different STEM

(Science, Technology, Engineering, Math) disciplines—and then my later research and

writing focusing on how humans think have helped me make sense of recent advances in

neuroscience and cognitive psychology related to learning.

In the years since I received my doctorate, thousands of students have swept through my

classrooms—students who have been reared in elementary school and high school to

believe that understanding math through active discussion is the talisman of learning. If

you can explain what you’ve learned to others, perhaps drawing them a picture, the

thinking goes, you must understand it.

Japan has become seen as a much-admired and emulated exemplar of these active,

“understanding-centered” teaching methods. But what’s often missing from the discussion

is the rest of the story: Japan is also home of the Kumon method of teaching mathematics,

which emphasizes memorization, repetition, and rote learning hand-in-hand with

developing the child’s mastery over the material. This intense afterschool program, and

others like it, is embraced by millions of parents in Japan and around the world who

supplement their child’s participatory education with plenty of practice, repetition, and

yes, intelligently designed rote learning, to allow them to gain hard-won fluency with the

material.

In the United States, the emphasis on understanding sometimes seems to have replaced

rather than complemented older teaching methods that scientists are—and have

been—telling us work with the brain’s natural process to learn complex subjects like math

and science.

The latest wave in educational reform in mathematics involves the Common Core—an

attempt to set strong, uniform standards across the U.S., although critics are weighing in

to say the standards fail by comparison with high-achieving countries. At least

superficially, the standards seem to show a sensible perspective. They propose that in

mathematics, students should gain equal facility in conceptual understanding, procedural

skills and fluency, and application.

The devil, of course, lies in the details of implementation. In the current educational

climate, memorization and repetition in the STEM disciplines (as opposed to in the study

of language or music), are often seen as demeaning and a waste of time for students and

teachers alike. Many teachers have long been taught that conceptual understanding in

STEM trumps everything else. And indeed, it’s easier for teachers to induce students to

discuss a mathematical subject (which, if done properly, can do much to help promote

understanding) than it is for that teacher to tediously grade math homework. What this all

means is that, despite the fact that procedural skills and fluency, along with application,

are supposed to be given equal emphasis with conceptual understanding, all too often it

doesn’t happen. Imparting a conceptual understanding reigns supreme—especially during

precious class time.

The problem with focusing relentlessly on understanding is that math and science

students can often grasp essentials of an important idea, but this understanding can

quickly slip away without consolidation through practice and repetition. Worse, students

often believe they understand something when, in fact, they don’t. By championing the

importance of understanding, teachers can inadvertently set their students up for failure

as those students blunder in illusions of competence. As one (failing) engineering student

recently told me: “I just don’t see how I could have done so poorly. I understood it when

you taught it in class.” My student may have thought he’d understood it at the time, and

perhaps he did, but he’d never practiced using the concept to truly internalize it. He had

not developed any kind of procedural fluency or ability to apply what he thought he

understood.

There is an interesting connection between learning math and science, and learning a

sport. When you learn how to swing a golf club, you perfect that swing from lots of

repetition over a period of years. Your body knows what to do from a single thought—one

chunk—instead of having to recall all the complex steps involved in hitting a ball.

In the same way, once you understand why you do something in math and science, you

don’t have to keep re-explaining the how to yourself every time you do it. It’s not

necessary to go around with 25 marbles in your pocket and lay out 5 rows of 5 marbles

again and again so that you get that 5 x 5 = 25. At some point, you just know it fluently

from memory. You memorize the idea that you simply add exponents—those little

superscript numbers—when multiplying numbers that have the same base (104 x 105 =

109). If you use the procedure a lot, by doing many different types of problems, you will

find that you understand both the why and the how behind the procedure very well

indeed. The greater understanding results from the fact that your mind constructed the

patterns of meaning. Continually focusing on understanding itself actually gets in the way.

I learned these things about math and the process of learning not in the K-12 classroom

but in the course of my life, as a kid who grew up reading Madeleine L’Engle and

Dostoyevsky, who went on to study language at one of the world’s leading language

institutes, and then to make the dramatic shift to become a professor of engineering.

As a young woman with a yen for learning language and no money or skills to speak of, I

couldn’t afford to go to college (college loans weren’t then in the picture). So I launched

directly from high school into the Army. I had loved learning new languages in high school,

and the Army seemed to be a place where people could actually get paid for their language

study, even as they attended the top-ranked Defense Language Institute—a place that had

made language- learning a science. I chose Russian because it was very different from

English, but not so difficult that I could study it for a lifetime only to perhaps gain the

fluency of a 4-year-old. Besides, the Iron Curtain was mysteriously appealing—could I

somehow use my knowledge of Russian to peer behind it?

After leaving the service, I became a translator for the Russians on Soviet trawlers on the

Bering Sea. Working for the Russians was fun and engrossing—but it was also a

superficially glamorous form of migrant work. You go to sea during fishing season, make a

decent salary while getting drunk all the time, then go back to port when the season’s over

and hope they’ll rehire you next year. There was pretty much only one other alternative

for a Russian language speaker—working for the National Security Agency. (My Army

contacts kept pointing me that way, but it wasn’t for me.)

I began to realize that while knowing another language was nice, it was also a skill with

limited opportunities and potential. People weren’t pounding down my door looking for

my Russian declension abilities. Unless, that is, I was willing to put up with seasickness and

sporadic malnutrition out on stinking trawlers in the middle of the Bering Sea. I couldn’t

help but reflect back on the West Point-trained engineers I’d worked with in the Army.

Their mathematically and scientifically based approach to problem-solving was clearly

useful for the real world—far more useful than my youthful misadventures with math had

been able to imagine.

So, at age 26, as I was leaving the Army and casting about for fresh opportunities, it

occurred to me: If I really wanted to try something new, why not tackle something that

could open a whole world of new perspectives for me? Something like engineering? That

meant I would be trying to learn another very different language—the language of

calculus.

With my poor understanding of even the simplest math, my post-Army retraining efforts

began with not-for-credit remedial algebra and trigonometry. This was way below

mathematical ground zero for most college students. Trying to reprogram my brain

sometimes seemed like a ridiculous idea—especially when I looked at the fresh young

faces of my younger classmates and realized that many of them had already dropped their

hard math and science classes—and here I was heading right for them. But in my case,

from my experience becoming fluent in Russian as an adult, I suspected—or maybe I just

hoped—that there might be aspects to language learning that I might apply to learning in

math and science.

What I had done in learning Russian was to emphasize not just understanding of the

language, but fluency. Fluency of something whole like a language requires a kind of

familiarity that only repeated and varied interaction with the parts can develop. Where

my language classmates had often been content to concentrate on simply understanding

Russian they heard or read, I instead tried to gain an internalized, deep-rooted fluency

with the words and language structure. I wouldn’t just be satisfied to know that понимать

meant “to understand.” I’d practice with the verb—putting it through its paces by

conjugating it repeatedly with all sorts of tenses, and then moving on to putting it into

sentences, and then finally to understanding not only when to use this form of the verb,

but also when not to use it. I practiced recalling all these aspects and variations quickly.

After all, through practice, you can understand and translate dozens—even thousands— of

words in another language. But if you aren’t fluent, when someone throws a bunch of

words at you quickly, as with normal speaking (which always sounds horrifically fast when

you’re learning a new language), you have no idea what they’re actually saying, even

though technically you understand all the component words and structure. And you

certainly can’t speak quickly enough yourself for native speakers to find it enjoyable to

listen to you.

This approach—which focused on fluency instead of simple understanding—put me at the

top of the class. And I didn’t realize it then, but this approach to learning language had

given me an intuitive understanding of a fundamental core of learning and the

development of expertise—chunking.

Chunking was originally conceptualized in the groundbreaking work of Herbert Simon in

his analysis of chess—chunks were envisioned as the varying neural counterparts of

different chess patterns. Gradually, neuroscientists came to realize that experts such as

chess grand masters are experts because they have stored thousands of chunks of

knowledge about their area of expertise in their long-term memory. Chess masters, for

example, can recall tens of thousands of different chess patterns. Whatever the discipline,

experts can call up to consciousness one or several of these well-knit-together, chunked

neural subroutines to analyze and react to a new learning situation. This level of true

understanding, and ability to use that understanding in new situations, comes only with

the kind of rigor and familiarity that repetition, memorization, and practice can foster.

As studies of chess masters, emergency room physicians, and fighter pilots have shown, in

times of critical stress, conscious analysis of a situation is replaced by quick, subconscious

processing as these experts rapidly draw on their deeply ingrained repertoire of neural

subroutines—chunks. At some point, self-consciously “understanding” why you do what

you do just slows you down and interrupts flow, resulting in worse decisions. When I felt

intuitively that there might be a connection between learning a new language and learning

mathematics, I was right. Day-by-day, sustained practice of Russian fired and wired

together my neural circuits, and I gradually began to knit together chunks of Slavic insight

that I could call into working memory with ease. By interleaving my learning—in other

words, practicing so that I knew not only when to use that word, but when not to use it, or

to use a different variant of it—I was actually using the same approaches that expert

practitioners use to learn in math and science.

When learning math and engineering as an adult, I began by using the same strategy I’d

used to learn language. I’d look at an equation, to take a very simple example, Newton’s

second law of f = ma. I practiced feeling what each of the letters meant—f for force was a

push, m for mass was a kind of weighty resistance to my push, and a was the exhilarating

feeling of acceleration. (The equivalent in Russian was learning to physically sound out the

letters of the Cyrillic alphabet.) I memorized the equation so I could carry it around with

me in my head and play with it. If m and a were big numbers, what did that do to f when I

pushed it through the equation?If f was big and a was small, what did that do to m? How

did the units match on each side? Playing with the equation was like conjugating a verb. I

was beginning to intuit that the sparse outlines of the equation were like a metaphorical

poem, with all sorts of beautiful symbolic representations embedded within it. Although I

wouldn’t have put it that way at the time, the truth was that to learn math and science

well, I had to slowly, day by day, build solid neural “chunked” subroutines—such as

surrounding the simple equation f = ma—that I could easily call to mind from long term

memory, much as I’d done with Russian.

Time after time, professors in mathematics and the sciences have told me that building

well-ingrained chunks of expertise through practice and repetition was absolutely vital to

their success. Understanding doesn’t build fluency; instead, fluency builds understanding.

In fact, I believe that true understanding of a complex subject comes only from fluency.

In other words, in science and math education in particular, it’s easy to slip into teaching

methods that emphasize understanding and that avoid the sometimes painful repetition

and practice that underlie fluency. I learned Russian not just by understanding

it—understanding, after all, is facile, and can easily slip away. (What did that word

понимать mean?) I learned Russian by gaining fluency through practice, repetition, and

rote learning—but rote learning that emphasized the ability to think flexibly and quickly. I

learned math and science by applying precisely those same ideas. Language, math, and

science, as with almost all areas of human expertise, draw on the same reservoir of brain

mechanisms.

As I forayed into a new life, becoming an electrical engineer and, eventually, a professor of

engineering, I left the Russian language behind. But 25 years after I’d last raised an

inebriated glass on the Soviet trawlers, my family and I decided to take the trans-Siberian

railway across Russia. Although I was excited to take the long-dreamed-of trip, I was also

worried. I’d barely uttered a word of Russian in all that time. What if I’d lost it all? What

had those years of gaining fluency really bought me?

Sure enough, when we first got on the train, I spoke Russian like a 2-year-old. I’d grasp for

words, my declensions and conjugations were all wrong, and my formerly near-perfect

accent sounded dreadful. But the foundation was there, and day by day, my Russian

improved. And even with my rudimentary Russian, I could handle the day-to-day needs of

our traveling. Soon, tour guides were coming to me for help translating for the other

passengers. When we finally arrived in Moscow, we hopped in a taxi. The driver, I soon

discovered, was intent on ripping us off—heading directly the wrong way and trapping us

in a logjam of cars, where he expected us ignorant foreigners to quietly acquiesce to an

unnecessary extra hour of meter time. Suddenly, Russian words I hadn’t spoken for

decades flew from my mouth. I hadn’t even consciously known I knew those words.

Underneath it all, when it was needed, the fluency was there—and it quickly got us out of

trouble (and into another taxi). Fluency allows understanding to become embedded,

emerging when needed.

As I look today at the shortage of science and math majors in this country, and our current

trend in how we teach people to learn, and as I reflect on my own pathway, knowing what I

know now about the brain, it occurs to me that we can do better. As parents and teachers,

we can use simple, accessible methods for deepening understanding and making it useful

and flexible. We can encourage others and ourselves to try new disciplines that we

thought were too hard—math, dance, physics, language, chemistry, music—opening new

worlds for ourselves and others.

As I discovered, having a basic, deep-seated fluency in math and science—not just an

“understanding,” is critical. It opens doors for many of life’s most intriguing jobs. Looking

back, I realize that I didn’t have to just blindly follow my initial inclinations and passions.

The “fluency” part of me that loved literature and language was also the same part of me

that ultimately fell in love with math and science—and transformed and enriched my life.

Explanation of the article:

Personal Journey

The author recounts their journey from being a literature-focused individual who

avoided math and science to becoming an engineering professor deeply engaged

with mathematical concepts like Euler's equation. This transformation, despite

initial struggles, highlights the potential for adult neural plasticity and the

importance of perseverance in learning.

Learning Approaches

Learning math and science as an adult provided the author with insights into the

neuroplasticity underlying adult learning. Their experience emphasized the

significance of fluency over simple understanding, drawing parallels between

language acquisition and mastering STEM subjects through practice, repetition,

and rote learning.

Teaching Methods

The author critiques contemporary teaching methods that prioritize conceptual

understanding over procedural skills and fluency in STEM education. They

advocate for a balanced approach that integrates conceptual understanding with

practice and repetition, citing examples from Japan's Kumon method and their own

experiences in learning Russian and engineering.

Importance of Fluency

Fluency, acquired through repeated practice and memorization, is highlighted as

essential for true understanding and proficiency in complex subjects like math and

science. The author argues that fluency, rather than understanding alone, fosters

expertise and enables individuals to effectively apply their knowledge in diverse

situations, drawing parallels to the chunking process observed in experts across

domains.

Impact on Education

The author reflects on the current educational landscape, particularly the Common

Core standards in the United States, and suggests that an overemphasis on

understanding may hinder the development of procedural fluency and application

skills in STEM disciplines. They advocate for teaching methods that balance

understanding with rigorous practice to cultivate deep-seated fluency and

expertise.

Personal Growth

The author's journey from literature to engineering illustrates the transformative

power of embracing new challenges and disciplines. They emphasize the role of

fluency in unlocking opportunities and enriching one's life, encouraging others to

explore diverse fields and deepen their understanding through persistent practice

and engagement.

Learning Mathematics

The author draws parallels between learning mathematics and mastering a sport,

highlighting the importance of repeated practice in developing fluency and

internalizing procedural knowledge. They emphasize that understanding the "why"

behind mathematical concepts is complemented by fluency in executing

procedures, akin to muscle memory in sports.

Language Learning

Drawing from their experience learning Russian, the author underscores the

effectiveness of focusing on fluency rather than mere understanding. They

describe their method of intensive practice, repetition, and rote learning, which

enabled them to internalize the language structure and swiftly recall information,

ultimately leading to fluency in Russian.

Chunking

The concept of chunking is introduced as a key mechanism underlying expertise in

various domains, including chess and emergency medicine. The author explains

that experts rely on well-knit neural subroutines, or "chunks," stored in long-term

memory, to make rapid decisions and solve complex problems. They emphasize that

fluency in math and science is built upon the chunking of fundamental concepts and

procedures.

Application in Education

The author advocates for integrating chunking-based learning strategies into

education, particularly in STEM fields, to cultivate deep-seated fluency and

expertise. They argue that emphasizing rote learning and procedural fluency

alongside conceptual understanding can enhance students' ability to apply their

knowledge effectively in real-world contexts, ultimately fostering true mastery of

the subject matter.

Personal Reflection

Reflecting on their own journey, the author concludes that fluency in math and

science opens doors to rewarding opportunities and enriches one's life. They

encourage parents and educators to promote fluency-based learning approaches,

empowering individuals to overcome challenges and explore new disciplines with

confidence and curiosity.

Article 15:

Try applying the TEST approach - Translate -> Explain -> Summarize

-> Think

A summary and explanation of the article is given at the end of this

document.

When Bob Bergeson’s friend invited him to a Denver Nuggets basketball game with some

new pals, he was excited to join in. Sure, the evening would cost him nearly $400, an

amount he wouldn’t normally spend. But Mr. Bergeson’s splurge didn’t reflect a slavish

devotion to basketball; he opened his wallet because he felt insecure about his languishing

relationship with his friend, who he perceived to be getting closer to a new group of

people.

“He started hanging out with the dads on his daughter’s soccer team and talking about

them fondly and I thought, ‘Oh, man he’s kind of got some new friends,’” Mr. Bergeson, 42,

a business consultant in Denver, said. “I needed to insert myself to make sure I still

mattered to him.”

Just like you can lose a romantic partner to another person, “friends can also lose their slot

in the best friend hierarchy,” said Jaimie Krems, a friendship researcher and assistant

professor of psychology at Oklahoma State University. This fear of being replaced is often

borne out of jealousy, Dr. Krems said. And one way to cope with it, she added, is by doing

something social scientists refer to as friend guarding — actions like excessively praising a

friend or cutting down a new rival, for example — to maintain a threatened relationship.

“Like all behaviors, there are good and bad aspects of friend guarding,” Dr. Krems said.

Telling your friend how much they mean to you might bolster your friendship, she said, but

badmouthing a newbie might anger your friend and cause them to pull away.

Miriam Kirmayer, a friendship expert and clinical psychologist in Ottawa, said feelings of

jealousy and envy in friendships are quite common with her adult clients, but many feel

ashamed of those feelings because they mistake them “as a sign of immaturity.” On the

contrary, Dr. Kirmayer said. When handled correctly, jealousy can lead to a deeper

understanding of yourself, and as a result, more fulfilling friendships. Here’s how.

Feelings of fear, anger and jealousy often make people uncomfortable, but like all

emotions, they evolved to protect well-being, said Mark Leary, a professor of psychology

and neuroscience at Duke University. “Negative emotions alert us to potential danger and

motivate us to take pre-emptive action.”

In truly perilous scenarios — like a pandemic, for instance — you might cope with your

anxiety by wearing a mask and steering clear of crowds. In less dire situations, like when

you think you’re on the brink of losing a friend, you might attempt to hold their interest by

becoming a better listener or trying to be more positive and upbeat.

When feelings of jealousy bubble to the surface, start by questioning how good of a friend

you’ve really been. You might ask yourself, “What kind of friend do I want to be?” And

perhaps, the answer will help steer you toward traits that foster acceptance by your social

circle, like more compassion and generosity.

Identifying the origins of your feelings can also help you pinpoint potential triggers that

may make jealousy worse. If you’re already second-guessing yourself at work, for instance,

you might assume a turned down dinner invitation is a sign of a friend pulling away. In

other instances, unhealed wounds from childhood — growing up with inconsistent

caregivers, for example — can make you more sensitive to rejection as an adult.

To identify these potential triggers, ask yourself questions like: “What past experiences

might this feeling be linked to?” and “Is my jealousy triggered by circumstances in my own

life?” Dr. Kirmayer suggested.

Once you understand your emotions, decide how you want to proceed. Instead of letting

jealousy elicit knee-jerk negative responses like leveling accusations, you might see the

emotion as a signal to talk with your friend, or to work through some issues on your own.

When Joli Hamilton’s close friend planned a party without her, she was overcome with

jealousy. “I found out through mutual friends and the rejection really stung,” said Ms.

Hamilton, 45, a relationship coach in Westfield, Mass.

Ms. Hamilton admitted that her hurt feelings unleashed catastrophic thoughts like, “I don’t

know why I ever thought we were friends!” and “After everything I’ve done for her, she

doesn’t get to leave me out!” But instead of telling her friend off, Ms. Hamilton decided to

have an honest conversation about her concerns.

As a result, both parties better understood the insecurities and desires that fueled their

behavior. “I always wanted to be included in all of her plans, but she needed space to spend

time with other people,” Ms. Hamilton said. And shortly after, the friends reached a

compromise. “We ended up spending less time together, but that time was one-on-one

with activities we both enjoyed.”

Unlike with romantic relationships, we rarely ask ourselves, “What should I expect out of a

really good friendship?” Dr. Leary said. But stating your needs and developing boundaries

can solidify trust, which helps build more mature friendships.

Jealousy isn’t always personal.

When jealousy swells, it can be easy to assume there’s something wrong with you. But in

most cases, this is far from the truth. “Even though our feelings are real, our brains aren’t

always objective truth tellers,” said Joel Minden, a clinical psychologist and lecturer at

California State University, Chico, and the author of “Show Your Anxiety Who’s Boss.”

To manage self-critical thoughts, he said, take a step back and see if there’s another way to

understand the situation. If your best friend cancels your weekly phone date to have

dinner with their new pal, you might assume it’s because you’re a downer or a bad friend.

But ask yourself if there’s any evidence for or against that belief, or if there’s “another

explanation for your friend’s behavior that’s more realistic,” Dr. Minden advised.

Replacing negative thoughts with more useful explanations can ease the emotional weight

that hurtful assumptions can bring, Dr. Minden added. For example, “my friend needs

different kinds of friends” is an easier pill to swallow than “my friend is replacing me.”

Reframing jealous thoughts into empathetic ones can help.

Another way to thwart the negative feelings of jealousy is to find small ways to be happy

for your friend, said Sara Konrath, an empathy researcher at Indiana University. Instead of

ruminating on how a buddy’s new friendship with someone else affects you, think, “I’m

really happy that she has somebody else she feels connected to,” Dr. Konrath suggested.

When we prioritize empathy in friendships, reminders of how much our friends mean to us

and how much we mean to them can temper jealous feelings.

As for Mr. Bergeson, he had a great time at the game. And fortunately for him, those

feelings of jealousy ended up being short-lived. “My friend made sure I was enjoying

myself and this relieved my worries about possibly losing him to a new crowd.”

Explanation of the article:

Jealousy in Friendships

Bob Bergeson's experience at a Denver Nuggets basketball game highlights how

feelings of jealousy and insecurity can arise in friendships when individuals

perceive themselves as being replaced by new social connections. This fear of being

supplanted can lead to behaviors like friend guarding, where individuals take

actions to maintain threatened relationships.

Coping with Jealousy

Friendship experts like Jaimie Krems and Miriam Kirmayer suggest that jealousy,

when handled correctly, can deepen self-understanding and foster more

meaningful friendships. Mark Leary emphasizes the evolutionary role of negative

emotions like jealousy in alerting individuals to potential threats and motivating

proactive responses to protect relationships.

Understanding Jealousy

Identifying the root causes of jealousy, such as past experiences or unmet

emotional needs, can help individuals manage their emotions and respond more

constructively. By reframing negative thoughts and finding empathetic

perspectives, individuals can mitigate the emotional weight of jealousy and

cultivate a sense of happiness for their friends' connections and experiences.

Communication and Boundaries

Open and honest communication, as demonstrated by Joli Hamilton's experience,

can help friends address feelings of jealousy and navigate challenges in their

relationships. Setting clear boundaries and expressing needs can foster trust and

maturity in friendships, enabling individuals to negotiate compromises and better

understand each other's perspectives and desires.

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relationships. Setting clear boundaries and expressing needs can foster trust and

maturity in friendships, enabling individuals to negotiate compromises and better

understand each other's perspectives and desires. By fostering dialogue and

mutual understanding, friends can strengthen their bonds and alleviate the

tensions caused by jealousy.

Managing Self-Critical Thoughts

Joel Minden advises individuals to challenge self-critical thoughts and consider

alternative explanations for their friends' behavior, rather than automatically

assuming personal fault. By replacing negative assumptions with more realistic and

empathetic interpretations, individuals can alleviate the emotional burden of

jealousy and maintain healthier perspectives on themselves and their friendships.

Cultivating self-compassion and understanding can help individuals develop

resilience and navigate the complexities of social relationships more effectively.

Cultivating Empathy

Sara Konrath suggests that prioritizing empathy in friendships can counteract

jealous feelings by fostering genuine happiness for friends' connections and

experiences. By appreciating the significance of their own relationships and

celebrating the connections of others, individuals can cultivate a sense of

contentment and security in their friendships, ultimately mitigating jealousy and

strengthening bonds. Embracing empathy as a guiding principle in social

interactions can promote positive emotions and enhance overall well-being within

relationships.

Conclusion

Bob Bergeson's experience at the basketball game highlights the transient nature

of jealousy and the importance of open communication in maintaining strong

friendships. By recognizing and addressing feelings of jealousy constructively,

individuals can deepen their understanding of themselves and others, fostering

more fulfilling connections. Ultimately, embracing empathy, communication, and

self-compassion can empower individuals to navigate the complexities of

friendship with grace and resilience, strengthening their social bonds and enriching

their lives.

Article 16:

Try applying the TEST approach - Translate -> Explain -> Summarize

-> Think

A summary and explanation of the article is given at the end of this

document.

When Peter and Sjanna Leighton were in their early 20s, their marriage fell apart. Money

was tight, and they each feared they were disappointing the other; neither one knew how

to communicate their vulnerabilities and hurt.

So one day, almost a year after their vows, Peter packed his bags and moved out of their

home in San Antonio, Texas. He got an apartment on his own and focused on building his

career in the restaurant business.

“From the outside world, it may have looked like I’d recovered from our marriage failing,”

says Peter, who became chronically depressed. “But the memories of how powerful our

togetherness could have been, and what could have happened if we had continued

developing — all of that churned in me.”

Peter and Sjanna both quietly carried their regret over giving up on their relationship

through other marriages, children, and divorce. Then in 2007, 33 years later, Sjanna

searched Peter’s name online and found his photography website. “The first photo that

came up was a picture of him that he’d taken in our bathroom when we were married, and

the second picture was me on our honeymoon, which he had titled ‘The Muse,’” says

Sjanna. She realized that he lived in Austin, not far from her, and after a few weeks, she

built up the courage to send him an email. They met up for coffee. When they met up a

second time a few weeks later, she asked him, “What happened with us, Peter?” He

replied, “I don’t know, but you were the love of my life.” Within a month of reconnecting,

they were dating again.

Today, at 75 and 72 years old, Peter and Sjanna have been happily remarried for 16 years.

“When we got back together, we did it with our regrets and our perceived mistakes,” says

Peter. “Because of that, when there have been storms, we’ve been able to weather them.”

Few people have a second chance the way Peter and Sjanna did, but most of us live with

regrets. We may not own up to them (maybe not even to ourselves), but we all have past

actions we wish we could change — bullying a middle school classmate, not telling a loved

one how much they meant to us, choosing a safe job rather than taking a creative risk —

yet we rarely reckon with this universal feeling or recognize how it can benefit us. Since

we can’t change the past, regret can seem useless and self-indulgent. But the emotion can

clarify a disconnect between who we are and who we want to be. And it can show us how

to change.

What causes regret

“There are three pieces to regret,” says Amy Summerville, a research scientist who has led

studies on the emotion. “One, it feels bad; two, it’s based on a thought about how things

could have been better; three, the thought is focused on your own actions.” In other words,

if you feel bad after acing an interview and not getting the job, that’s not regret; if you feel

bad because you stayed up late playing video games and slept through the interview, that

could be.

According to Summerville, the most common regrets come from career and romance. As

people age, entering their 60s and 70s, family and health start to come up as regrets, too,

but romantic regret remains consistent through life stages.

She has also found that regrets of inaction are more common than regrets of action. In

other words, we tend to regret the things we didn’t do rather than the things we did.

“Human memory adaptively functions to remind us of open things on our to-do list, rather

than things we’ve crossed off,” says Summerville, “which might mean that we have a better

memory for unmet goals and they persist longer.”

Another factor: When we think about the path we didn’t take, we only imagine the dreamy

positives, overlooking the mundane details and inevitable disappointments. It’s harder to

regret choices we actually made since they led to so many other specifics. “With action

regrets, you can find a silver lining, but with inaction regrets, you can’t do that,” says Daniel

Pink, author of The Power of Regret: How Looking Backward Moves Us Forward. It’s easy

to regret not running away with that glamorous stranger at 22 since you don’t see the

fights and heartbreak. It’s trickier to regret an unhappy marriage if it also led to wonderful

kids.

Placing regret in context

If you’re reckoning with regret, first, be kind to yourself — and realistic. It’s easy to imagine

acting differently if we could do it all over with what we know now, but we didn’t yet have

that experience. “If you’re middle-aged, with kids and a mortgage, it’s easy to say, ‘Why

didn’t I take a year off and go live in Europe after college?’” says Summerville. “But if you

really think about yourself after graduation, with student loans and family pressure to get

a career, you remember how you did have responsibilities and stressors then.”

It’s important to contextualize the emotion within your setting, too, especially if you live in

a community that highly values personal choice and responsibility. “When we talk about

how ‘people’ feel regret, we’re largely talking about how white Americans and Western

Europeans experience it,” says Summerville. More collectivist cultures can turn down the

inner spotlight on our personal choices: An arranged marriage or raising kids within the

family compound can take away some of the pressure around finding your individual path.

Some religions also provide established rituals for making sense of regret, like Catholic

confession or Yom Kippur, the Jewish day of atonement. But in the US, people are taught

that life is what we make it as individuals — so if something goes wrong, it’s a catastrophe

and it’s our fault.

Come clean about regret

The first step toward coming to terms with your regrets is owning up to them, which can

be tough. “In the US, we’ve over-indexed on positivity,” says Pink, who has led surveys that

documented thousands of regrets within the US and across the world. “We tend to think

that the path to a life well-lived is to be positive all the time and never negative, to look

forward and never look back.” When he started talking to others about regret in midlife,

Pink says he felt sheepish, expecting them to disengage from the conversation. He found

the opposite: Everyone else had regrets, too, although they often felt like they weren’t

supposed to voice them.

When Sjanna Leighton got back together with Peter in her 50s, it eased some of her

sadness about the end of their marriage. But as they fell in love, rediscovering the joys of

their relationship, she also felt acute regret: What if they had been vulnerable with each

other in their 20s and stuck it out? What would their shared life have looked like through

their 30s and 40s, as partners and parents?

“When we got back together, I felt safe and acknowledged, like he accepted me for who I

was, which was an extraordinary feeling,” she says. “It also made me really sad. I wished

we’d stayed together, that we had understood each other better.”

Let that regret inform your life

At first, Sjanna found that regret painful. But as she and Peter have sustained a happy

second marriage to each other, she’s realized how the emotion informs her current

relationship, which is full of gratitude, compassion, and wonder. “We’d both had difficult

marriages and had kids, and know how precious it is to have someone that loves you for

who you are,” she says. Sometimes she still thinks about the lifelong relationship that could

have been, but when she sees couples her age bickering or bored with each other, she feels

grateful that she and Peter never take each other for granted. “We’ve had some things

happen that are difficult, but at the end of the day, there’s nowhere we’d rather be than

beside each other,” says Sjanna.

If we let it, regret can clarify how to live: How is our life misaligned with our values? How

do we want to act differently in the time we have left?“It can help us become clearer

thinkers, better problem solvers, and better at finding meaning in life,” says Pink. “Some of

us ignore regret; others wallow, but what we should be doing is confronting our regrets,

using them as data and information.”

For example, say you’re 60 years old and regret that you stayed in a lackluster job rather

than starting your own business. First, instead of feeling contempt for your younger self,

treat yourself with kindness and curiosity. Place your choices in context: What were the

reasons you stayed in this job? What were the pressures and unknowns you faced at the

time? Remember, this choice is only one small part of who you are; think about some of the

choices you made that make you feel proud.

Next, analyze. What can you learn about yourself from this regret? For the 60-year-old, a

lesson might be that with the security and clarity of age, you value boldness and

risk-taking more than you used to. You can work with that. Maybe you start a creative side

hustle, or mentor young people, or take on a leadership role in a group at the library.

“You’re trying to look backward in order to move forward,” says Pink. “You can’t undo what

you did, but you can use that piercing negative feeling as a signal about what you value,

and a north star for guiding the rest of your life.”

Remember to give yourself grace

Reckoning with regret often feels painful and scary. If you admit to wishing you had acted

differently, then you’re admitting your imperfections. You’re not someone who lives with

“no regrets,” a glib success who never fails. But when you release yourself from the false

binary of being a success or a failure, you’re free to live in a more thoughtful, informed

way, one shaped by an understanding of your strengths and values. It’s never too late to

learn from your regrets and use them to shape who you want to be today: If you wish you

had taken English classes seriously in college, ask your friends about their favorite books

and put together your own syllabus from their recommendations. If you regret the nights

you spent working late while your kids were young, talk to them about how you’d like to

build a closer relationship with them (and maybe their kids) now. Owning your regret is

vulnerable, but it’s the best way to avoid accumulating more regrets in the future.

Sjanna and Peter still have arguments and tense periods in their marriage. But unlike in

their 20s, they know how to work through it — and that their relationship is worth it. “Part

of the regret we both carry with us is that we weren’t ready,” says Peter. “Now, we are.”

Explanation of the article:

Peter and Sjanna's Second Chance

Peter and Sjanna Leighton's marriage ended in their early 20s due to a lack of

communication and understanding. Decades later, after separate marriages and

divorces, they reconnected, acknowledging their regrets and mistakes. Despite the

challenges, they embraced their second chance at love and have been happily

remarried for 16 years. Their story highlights the potential for growth, forgiveness,

and reconciliation even after profound regret and loss, offering hope to those

navigating similar experiences.

Understanding Regret

Regret is a complex emotion characterized by feelings of sadness and

disappointment over past actions or inactions that could have led to better

outcomes. Research by Amy Summerville suggests that common sources of regret

include career choices and romantic relationships, with inaction regrets being more

prevalent than action regrets. People often idealize alternative paths not taken,

overlooking the mundane details and challenges they would have faced. Despite its

negative connotations, regret can serve as a valuable source of insight and

motivation for personal growth and change.

Coping with Regret

Coping with regret involves acknowledging and accepting past choices while

treating oneself with kindness and understanding. It's essential to contextualize

decisions within the circumstances and pressures faced at the time, avoiding harsh

self-criticism. Owning up to regrets can be challenging, especially in societies that

prioritize positivity and individual responsibility. However, embracing regret as a

source of learning and self-awareness can empower individuals to make more

aligned choices and live authentically.

Using Regret as a Catalyst for Change

Regret can serve as a catalyst for positive change by prompting individuals to

reflect on their values and priorities, identify areas for improvement, and take

meaningful action. Rather than dwelling on past mistakes, individuals can use

regret as valuable feedback to inform future decisions and behaviors. By examining

the lessons learned from regret and aligning actions with personal values,

individuals can navigate life with greater purpose and fulfillment, transforming

regret into a catalyst for growth and resilience.

Embracing Vulnerability and Growth

Embracing vulnerability and growth involves acknowledging regrets without

succumbing to self-blame or despair. By recognizing imperfections and past

mistakes, individuals can cultivate self-compassion and resilience, freeing

themselves from the pressure to live a flawless life. Accepting regrets as part of the

human experience allows individuals to learn from their experiences, build

meaningful connections, and pursue authentic paths aligned with their values and

aspirations. Through vulnerability and growth, individuals like Peter and Sjanna

Leighton can find strength and fulfillment in their journey of self-discovery and

reconciliation.

Conclusion

Peter and Sjanna Leighton's journey illustrates the transformative power of

acknowledging and embracing regret as a catalyst for growth and reconciliation. By

confronting past mistakes with compassion and vulnerability, individuals can

navigate life's complexities with resilience and authenticity, shaping their future

with intention and purpose. Rather than viewing regret as a source of shame or

despair, embracing it as a valuable teacher empowers individuals to live more

meaningful and fulfilling lives, guided by self-awareness, compassion, and a

commitment to growth.

Shahzar’s Note:

Here’s another way of visualizing this article - think of a regret that you may have in

your life, and try to contextualize it within this story - what can you do about it,

what can you do to not have that regret?

Article 17:

Try applying the TEST approach - Translate -> Explain -> Summarize

-> Think

A summary and explanation of the article is given at the end of this

document.

So the vital strength of his spirit won through, and he made his way far outside the

flaming walls of the world and ranged over the measureless whole, both in mind

and spirit.

—Lucretius, in De Rerum Natura, Book I.72

Epicurus was the first real philosopher of happiness. There were philosophers before who

made much of the good life—Socrates, Plato, Aristotle, Diogenes to name a few—but they

all talked about it in terms of virtue or goodness. Epicurus, much like ourselves, thought of

happiness as the highest goal of life. He was a philosophical hedonist believing that

pleasure was the key to unriddling the happy life. But as we shall see, this term hedonist is

something of a red herring and nowadays makes us think more of a Rolling Stone than a

sage.

The living philosophy of Epicurus is elegantly simple and can be summarised in the

Epicurean four-part cure and that’s what we’re going to explore here.

The Life of Epicurus

Epicurus was born on the Greek island of Samos. He was the son of a schoolmaster and

this middle-class background made him the source of disdain and derision among the

ancient philosophers who were almost exclusively aristocratic.

It’s worth questioning whether these humbler origins might be fruitfully connected with

Epicurus’s close kinship with our modern worldview. Is there something in the soil of the

middle-class psyche that predisposes it to pursue happiness and comfort as ideals?

After spending some years teaching in different places around the eastern Mediterranean,

Epicurus moved to his parents’ hometown Athens and there he set his school of

philosophy in what was known as The Garden of Epicurus which had the inscription on the

gate:

“Stranger, here you will do well to tarry; here our highest good is pleasure.”

He spent the rest of his life in Athens teaching, writing, living his best life and developing

and spreading his philosophy. The life of the Garden school was the model for later

Epicurean settlements. It’s like the movement towards communities that we’ve seen a lot

of since the 60’s counterculture. The idea was to live in a self-sufficient manner growing

your own food and living a simple life with your friends.

This ideal of friendship was one of the most important things in life in the Epicurean

philosophy. This theme comes up a lot in the scraps of writings we have left from him:

“The noble man is most involved with wisdom and friendship, of which one is a

mortal good, the other immortal.”—Vatican Collection #78

“Of the things which wisdom provides for the blessedness of one’s whole life, by far

the greatest is the possession of friendship.”—Doctrine XXVII

As well as friendship and self-sufficiency, Epicurus’s living philosophy was about living the

life that was most pleasurable or more accurately it was about living the life with the least

amount of pain and suffering. To attain this goal of ataraxia—freedom from

pain—Epicurus devised his fourfold cure (known as the Tetrapharmakos) that a later

Epicurean called Philodemus summarised as:

“Don’t fear god, don’t worry about death; what’s good is easy to get, and what’s

terrible is easy to endure.”

1. Don’t fear God

Epicurus’s attitude towards God is that we have nothing to worry about. Those who fear

punishment in the afterlife or the wrath of the gods should put it out of their minds. The

garden philosopher wasn’t an atheist but in essence his attitude was the same—there’s no

god watching over creation tentatively observing every transgression.

For Epicurus, the gods were perfect beings living in conditions and an attitude suitable to

perfection. He argued that it was inconsistent with the concept of divinity to think that

the gods cared about such petty affairs as our own. The most suitable way to think of them

was in a state of bliss, without any cares without any needs and invulnerable to harm. The

gods aren’t something to be feared but to be emulated and Epicurus said that if you live

the Epicurean way

“you will live as a god among men. For a man who lives among immortal goods is in

no respect like a mere mortal animal.”

Epicurus was a follower of Democritus’s theory of Atomism—which we looked at in a

previous episode—and he believed that there was a lot of value in studying the natural

world in what we would now call a scientific way. Understanding the mechanics of the

world helped us to overcome our superstitions and see that the cosmos is governed by

mechanical laws rather than puppeteered by a god.

2. “Don’t worry about death.”

The second aspect of Epicurus’s living philosophy is the cultivation of the proper attitude

towards death. Many people feel a lot of anxiety about death. For some it is fear of

punishment in the afterlife—but the first part of his cure should deal with those

anxieties—for others though they fear death because of their non-existence.

Epicurus seeks to put the mind to rest on this by saying that:

“Death, therefore, the most awful of evils, is nothing to us, seeing that, when we

are, death is not come, and, when death is come, we are not.”

—Epicurus, Letter to Menoceus

So death will always be irrelevant to us because by its very definition we are not present

when it is. Another brilliant point he makes here is by asking us if we remember any pain

from before we were born. And obviously that’s an absurd thought and so he says that

since we have no problem with endless non-existence on one end of our life why should

we fear it on the other?

As a materialist and a hedonist, the equation is simple for Epicurus—all pain and all

pleasure all good and all bad come from sense experience. Since death is the absence of

sense-experience it is neither painful nor pleasurable it’s just irrelevant.

And if philosophy is as some have said the art of dying, then Epicurus is one of the true

greats. Despite bitter hatred being cast towards him and his school by the other ancient

schools of philosophy, he was still admired for how he died.

He died a slow and painful death from a kidney stone blocking his urinary tract but despite

the prolonged pain involved, he is reported as saying in a letter to Idomeneus:

“I have written this letter to you on a happy day to me, which is also the last day of

my life. For I have been attacked by a painful inability to urinate, and also dysentery,

so violent that nothing can be added to the violence of my sufferings. But the

cheerfulness of my mind, which comes from the recollection of all my philosophical

contemplation, counterbalances all these afflictions.”

—Diogenes Laertius, X.22

It is always great to see a philosopher who not only talks the talk but also walks the walk

and it is something that even his staunchest detractors admired in him. It’s a lesson I think

we can all learn from and strive to emulate in our own living philosophies.

3. What we actually need is easy to get

The final two parts of the Epicurean good life complement each other like a yin and yang.

The one tells us that what is good—pleasure—is easy to attain and what is bad—pain and

suffering—is easy to endure.

This first part is the hedonistic core of Epicurus’s philosophy. The nature of this hedonism

was warped by his contemporaries and this warping has survived into the modern English

definition of an epicurean as “a person devoted to sensual enjoyment, especially that

derived from fine food and drink.” But as we shall see this conception is completely

off-base.

Though all pleasure is good for Epicurus, not all pleasures were made equal. He divides

them into three types: the natural and necessary, the natural but not necessary and the

vain pleasures.

The first of these are what he is talking about when he says that what we need is easy to

get. These are the simple pleasures—food, shelter, safety and water. These things are easy

to hand and you can get them with little effort or money (at least back in his day; though

shelter doesn’t seem to be so cheap or easy to acquire as it was in his day)

The second category are like variations on the first. They provide a variety of pleasure but

they don’t remove the feeling of pain. So things like expensive foods and booze are things

that are natural but not really necessary. Sex would go into this category for Epicurus as

well.

The third category are the vain pleasures like fame and power that unlike the natural

pleasures are not limited by a satisfiable appetite. The desire for them does not go away by

getting a little. There is just never enough of them to go around and even those with a lot

will still be hungry for more.

So when you’re setting out to live the happy life you don’t just say yes to every pleasure

that comes your way. The goal is not to maximise pleasure but to minimise pain. A little

food and water keep away the pains of hunger and thirst.

Figuring out what path led to the least pain was the important thing and that’s why for

Epicurus the highest virtue in life was prudence; it’s even more important than philosophy.

Sometimes a pleasure can lead to more pain and sometimes a little pain now can lead to

more pleasure later and so prudence is the virtue that guides us in choosing the right

course that leads to the most pleasurable life. You can really see the fertile soil in

Epicureanism for the later evolution of Utilitarianism Bentham and John Stuart Mill.

By satisfying the natural and necessary pleasures we give our bodies what they need. And

as for our souls all they need is the confidence that our bodies will get what they need.

When you know that your body has what it needs and you are confident that your body

will continue to have what it needs then you will be cheerful and this is the key to enjoying

the pleasures of life. Epicurus calls cheerfulness ‘the limit of pleasure’.

The essence of the Epicurean attitude towards pleasure is learning the art and discipline

of recognising how little you need, to enjoy possessing it and enjoy the confidence you will

continue to possess it. This doesn’t mean swearing off all luxury in fact Epicurus says that

those who least need extravagance enjoy it most and in one of my favourites lines from

Epicurus he says in a letter to a friend:

“Send me a pot of cheese, so that I may have a feast when I care to.”

Simple pleasures without anxiety. That’s the essence of the Epicurean good life. Once you

remove the fear of the gods and of death then it’s about meeting the needs of the body

and the soul. We’ve looked at the pleasure side of this equation now let’s talk about pain.

4. What’s terrible is easy to endure

The final piece of the puzzle in the Epicurean philosophy of living is that what is terrible is

easy to endure. He argued that sickness is either brief or chronic and either mild or

intense. Most acute pains don’t last very long and chronic pains tend to cause only mild

distress. Discomfort that is both chronic and intense is very unusual.

As we have seen, Epicurus himself died in excruciating pain, after two weeks of

excruciating pain caused by kidney stones; but he died cheerfully, he claimed, because he

kept in mind the memory of his friends and the agreeable experiences and conversations

they had had together.

In comparison to physical pain, mental suffering is agony to endure but once you embrace

the Epicurean philosophy then you should be released from it and won’t have to face it

again as it contains the cure for anxiety.

The Impact of Epicurus

That’s everything I wanted to say about the living philosophy of Epicurus but before we

wrap up I thought it would be interesting to reflect on the legacy of this living philosophy

in the modern world.

One of America’s foremost founding fathers and its third president Thomas Jefferson was

an Epicurean. The mark of Epicureanism has made its way into the DNA of the country

through him and you can see it in his most famous bit of work the Declaration of

Independence where he argued for the values of life liberty and the pursuit of happiness.

Another of the most influential men of modern times was Karl Marx who did his PhD on

Epicurus and so it’s not surprising to find that his utopia of communes bears a striking

resemblance to the communal lifestyle of his ancient hero.

And as an interesting counterpoint to these two there is Nietzsche who admired Epicurus

and said that

“For those with whom fate attempts improvisations -those who live in violent ages

and depend on sudden and mercurial people—Stoicism may indeed be advisable.

But anyone who foresees more or less that fate permits him to spin a long thread

does well to make Epicurean arrangements. That is what all those have always done

whose work is of the spirit.”

—Friedrich Nietzsche, The Gay Science §344

One of the goals of Nietzsche’s life was to set up non-academic monasteries of the spirit

where the free spirits — the philosophers of tomorrow — would be educated and live in

high commune and you can see the strong does of Epicurus in the DNA of this vision.

So this Epicurean philosophy has a long reach despite being so brutally attacked and

misunderstood in the ancient world. It has influenced our modern world through its

greatest thinkers and like Democritus its materialist and egalitarian worldview bears a

closer relation to our modern post-Enlightenment world than any of the other

philosophers of antiquity.

Explanation of the article:

Shahzar’s Note:

We will better understand these articles once we complete our Philosophy classes.

Don’t worry if you are not able to understand parts of this Passage. You will get

much better clarity with time.

There isn’t a summary version of this since the passage is already divided into four

main “pointers” that can double down as summary.

Article 18:

Try applying the TEST approach - Translate -> Explain -> Summarize

-> Think

A summary and explanation of the article is given at the end of this

document.

If you take it for granted that nobody can listen in on your innermost thoughts, I regret to

inform you that your brain may not be private much longer.

You may have heard that Elon Musk’s company Neuralink surgically implanted a brain chip

in its first human. Dubbed “Telepathy,” the chip uses neurotechnology in a medical context:

It aims to read signals from a paralyzed patient’s brain and transmit them to a computer,

enabling the patient to control it with just their thoughts. In a medical context, neurotech

is subject to federal regulations.

But researchers are also creating noninvasive neurotech. Already, there are AI-powered

brain decoders that can translate into text the unspoken thoughts swirling through our

minds, without the need for surgery — although this tech is not yet on the market. In the

meantime, you can buy lots of devices off Amazon right now that would record your brain

data (like the Muse headband, which uses EEG sensors to read patterns of activity in your

brain, then cues you on how to improve your meditation). Since these aren’t marketed as

medical devices, they’re not subject to federal regulations; companies can collect — and

sell — your data.

With Meta developing a wristband that would read your brainwaves and Apple patenting

a future version of AirPods that would scan your brain activity through your ears, we

could soon live in a world where companies harvest our neural data just as 23andMe

harvests our DNA data. These companies could conceivably build databases with tens of

millions of brain scans, which can be used to find out if someone has a disease like epilepsy

even when they don’t want that information disclosed — and could one day be used to

identify individuals against their will.

Luckily, the brain is lawyering up. Neuroscientists, lawyers, and lawmakers have begun to

team up to pass legislation that would protect our mental privacy.

In the US, the action is so far happening on the state level. The Colorado House passed

legislation this month that would amend the state’s privacy law to include the privacy of

neural data. It’s the first state to take that step. The bill had impressive bipartisan support,

though it could still change before it’s enacted.

Minnesota may be next. The state doesn’t have a comprehensive privacy law to amend,

but its legislature is considering a standalone bill that would protect mental privacy and

slap penalties on companies that violate its prohibitions.

But preventing a company from harvesting brain data in one state or country is not that

useful if it can just do that elsewhere. The holy grail would be federal — or even global —

legislation. So, how do we protect mental privacy worldwide?

Your brain needs new rights

Rafael Yuste, a Columbia University neuroscientist, started to get freaked out by his own

neurotech research a dozen years ago. At his lab, employing a method called optogenetics,

he found that he could manipulate the visual perception of mice by using a laser to

activate specific neurons in the visual cortex of the brain. When he made certain images

artificially appear in their brains, the mice behaved as though the images were real. Yuste

discovered he could run them like puppets.

He’d created the mouse version of the movie Inception. And mice are mammals, with

brains similar to our own. How long, he wondered, until someone tries to do this to

humans?

In 2017, Yuste gathered around 30 experts to meet at Columbia’s Morningside campus,

where they spent days discussing the ethics of neurotech. As Yuste’s mouse experiments

showed, it’s not just mental privacy that’s at stake; there’s also the risk of someone using

neurotechnology to manipulate our minds. While some brain-computer interfaces only

aim to “read” what’s happening in your brain, others also aim to “write” to the brain — that

is, to directly change what your neurons are up to.

The group of experts, now known as the Morningside Group, published a Nature paper

later that year making four policy recommendations, which Yuste later expanded to five.

Think of them as new human rights for the age of neurotechnology:

1. Mental privacy: You should have the right to seclude your brain data so that it’s not

stored or sold without your consent.

2. Personal identity: You should have the right to be protected from alterations to your

sense of self that you did not authorize.

3. Free will: You should retain ultimate control over your decision-making, without

unknown manipulation from neurotechnologies.

4. Fair access to mental augmentation: When it comes to mental enhancement, everyone

should enjoy equality of access, so that neurotechnology doesn’t only benefit the rich.

5. Protection from bias: Neurotechnology algorithms should be designed in ways that do

not perpetuate bias against particular groups.

But Yuste wasn’t content to just write academic papers about how we need new rights. He

wanted to get the rights enshrined in law.

“I’m a person of action,” Yuste told me. “It’s not enough to just talk about a problem. You

have to do something about it.”

So Yuste connected with Jared Genser, an international human rights lawyer who has

represented clients like the Nobel Peace Prize laureates Desmond Tutu and Aung San Suu

Kyi. Together, Yuste and Genser created a nonprofit called the Neurorights Foundation to

advocate for the cause.

They soon notched a major win. In 2021, after Yuste helped craft a constitutional

amendment with a close friend who happened to be a Chilean senator, Chile became the

first nation to enshrine the right to mental privacy and the right to free will in its national

constitution. Mexico, Brazil, and Uruguay are already considering something similar.

Even the United Nations has started talking about neurotech: Secretary-General António

Guterres gave it a shoutout in his 2021 report, “Our Common Agenda,” after meeting with

Yuste.

Ultimately, Yuste wants a new international treaty on neurorights and a new international

agency to make sure countries comply with it. He imagines the creation of something like

the International Atomic Energy Agency, which monitors the use of nuclear energy. But

establishing a new global treaty is probably too ambitious as an opening gambit, so for

now, he and Genser are exploring other possibilities.

“We’re not saying that there necessarily need to be new human rights created,” Genser

told me, explaining that he sees a lot of promise in simply updating current interpretations

of human rights law — for example, extending the right to privacy to include mental

privacy.

That’s relevant both on the international level — he’s talking to the UN about updating the

provision on privacy that appears in the International Covenant on Civil and Political

Rights — and on the national and state levels. While not every nation will amend its

constitution, states with a comprehensive privacy law could amend that to cover mental

privacy.

That’s the path Colorado is taking. If US federal law were to follow Colorado in

recognizing neural data as sensitive health data, that data would fall under the protection

of HIPAA, which Yuste said would alleviate much of his concern. Another possibility would

be to get all neurotech devices recognized as medical devices so they would have to be

approved by the FDA.

When it comes to changing the law, Genser said, “It’s about having options.”

Explanation of the article:

Emerging Neurotechnology

Neurotechnology, including both invasive and noninvasive methods, is rapidly

advancing. Companies like Neuralink and Meta are developing devices to read and

interpret brain signals, potentially revolutionizing healthcare and consumer

technology. However, concerns about privacy and ethical implications have

emerged as these technologies become more prevalent.

Implications for Privacy

The rise of neurotechnology raises significant privacy concerns, as devices capable

of reading brain activity may intrude upon individuals' mental privacy. While

medical applications of neurotech are subject to federal regulations, consumer

devices like brainwave-reading headbands are not, allowing companies to collect

and potentially sell users' neural data without oversight.

Legislative Efforts to Protect Privacy

In response to growing concerns, lawmakers at both state and international levels

are beginning to address the need for legislation to safeguard mental privacy.

States like Colorado are pioneering efforts to include neural data in privacy laws,

while international organizations like the United Nations are considering updates

to human rights frameworks to protect against neurotech-related abuses.

The Need for Neuro-Rights

Neuroscientists and legal experts advocate for the establishment of neuro-rights to

protect individuals from potential misuse of neurotechnology. These proposed

rights include mental privacy, personal identity protection, free will preservation,

fair access to augmentation, and protection from algorithmic bias. Efforts are

underway to enshrine these rights in both national and international law.

Advocacy for Neuro-Rights

Initiatives like the Neurorights Foundation, led by neuroscientist Rafael Yuste and

human rights lawyer Jared Genser, aim to promote the recognition and protection

of neuro-rights globally. Chile has become the first nation to include mental privacy

and free will rights in its constitution, with other countries considering similar

measures. Efforts are underway to advocate for international agreements and

regulatory frameworks to ensure the ethical use of neurotechnology.

Future Directions in Legislation

Advocates like Yuste and Genser envision a future where neuro-rights are upheld

through international treaties and regulatory bodies. While ambitious, their efforts

aim to ensure that individuals' mental privacy and autonomy are respected in an

increasingly neurotech-driven world. Legislative pathways include amending

existing privacy laws, recognizing neurotech as medical devices, and updating

human rights frameworks.