Working from Home.
2 Months 8 Months and Still Counting…

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My letter, 23/04/2020 (Vladimir Salnikov)

Dear friends and colleagues,
These days most of us are working from home and this seems to be a unique experience. We thought of writing an article about this topic...

As a reminder, these are the first lines of my letter to mailing list for scientific announcements, asking them to share the experience of (not) working from home and (not) spending time with the family in this context. We published the full text of it and several replies in the previous issue of the EMS Newsletter:
https://www.ems-ph.org/journals/show_abstract.
php?issn=1027-488X&vol=9&iss=117&rank=7,
and we promised to continue in this one. I still hope it will not become a regular section, although I also received some feedback after the first publication like "Oh, I have stuff to share when/if I have time.", so let us see. I will be adding the dates again to give the proper context, and as promised before there are more "online" stories this time.

Andrew Bruce, letters from 24/04/2020 and 28/04/2020

Dear Vladimir,
Maybe not inspirational, but I do miss my blackboard and chalk. I am finding myself, in part due to this, a little less motivated than usual.

Another thing, maybe not completely mathematics related, is that I have explained to friends online about 5G more than once. Just some basic stuff about the electromagnetic spectrum, ionizing and non-ionizing radiation, how the power drops rapidly as you move away from the source. Some of my school friends are asking about science.

Best, Andrew

Hi Andrew!
Nice to hear from you! Indeed, it is probably tough to be stuck in the place [Luxembourg] where most people come to work and not being able to actually go to work… I am locked up in a kindergarten, so not very productive either… Hopefully it will end soon.
Thanks for sharing the 5G stuff. Me too, I had to explain some basic things to friends about "experts" on Youtube etc., and also what a reasonable clinical trial is. Sometimes surprised about supposedly well-educated people…
Anyway, good luck! Try not to get too desperate.
Yours, Vladimir

Hi Vladimir,
My situation is far more relaxed and peaceful than yours!

About the clinical trials, one old school friend is an antivaxxers. He has no concept of how science works, the amount of testing including clinical trials that are involved, and no idea that large-scale studies have and are being conducted on vaccine safety. It is madness, as all this information is available. However, the crap on Youtube needs a lot of filtering.[1]

Stay safe and enjoy this time at home, Andrew

Alexey Tuzhilin, letter from 24/04/2020

Dear Vladimir,
In my case, there has been no more change. Mostly I have been working from home, and I am still doing it now. The main difference is that I now use zoom for my lectures and seminars and do not lose time travelling to the university. In my opinion, it is more effective in the sense that you are mostly taking care of those students who are interested in education by themselves. The number of students attending my obligatory lectures has reduced in comparison to the usual amount. The reason, I think, is that the students are too shocked or impressed by the apocalyptic situation. In contrast, the number of people attending my special course has grown. In addition, this course has become international: some random people and some of my foreign friends have joined. When the isolation ends, I would like to continue my special course and seminar by means of zoom.

I do not think that we have any means of adequately explaining what maths is to non-maths people (except speculations to get some support). In my opinion, maths is similar to religion: to work successfully in it, you have to believe in maths, in its esoteric essence. And the only way to explain it is to draw a halo of mystery. To understand what is better, maths or cartoons, is similar to answering the question: should one believe in God, or live for momentary pleasure? Of course, it is better to have both. However, momentary pleasure can be obtained in many easy and quick ways, while the pleasure of maths is not obtained without some effort. How can we explain the pleasure of maths, its powerful purification of consciousness and the sparkle of pure mind as a result? How can esoteric people explain their state when they interact with mystery?

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[1] This discussion of fake news, strange opinions etc. … is very typical these days. With colleagues, we realized that probably now more than ever our role of educators is important.

That is why I simply continue to sit in front of a monitor full of different maths texts. It is my form of prayer, and my relatives appreciate that.

All the best, Alexey Tuzhilin

Katarzyna Grabowska, letter from 25/04/2020

Dear Vladimir,

Let me start by saying that it is very nice to hear from you!!! I wrote the following letter and then noticed that it is horribly long. Feel free to stop when you have had enough of it. Even before starting to read ;)

I will probably write a book about problems and observations I have made concerning remote everything, especially remote teaching. Let me then just point out two things:

1. My experience is that, whatever additional work or problem appears because of the isolation policy, it is expected to be done or taken care of by women. I have two children aged 16 and 19. They used to have a very independent lifestyle, including eating out almost every day. Usually at school, but sometimes in some kind of restaurant or cafe. Of course, now the school is closed, as well as restaurants, so I have to provide lunch every day, as tasty as possible and as healthy as possible. The family also needs some extras: a cake now and then… This takes up an enormous amount of time and moreover requires careful planning. All this is on me.

My daughter is supposed to take her Matura[2] exam this year. It has been postponed indefinitely. She was supposed to study in the UK, she has an offer e.g. from UCL, but who knows what will happen. This is of course all very stressful, and a mother is the person who should provide some comfort. And the same for other members of the family with their own problems and fears.

The next thing is that we used to have a cleaning lady, who of course does not come now, so cleaning is my next task. I can delegate, and I do, but it is still my responsibility to organise it.

Asia and I have been taking part in producing disposable masks for hospitals and other medical facilities, because in Poland there is still a problem with availability. This is voluntary work organised by a local scout organisation. Again, girls and women make up 90% of people doing it. As a result, I have not experienced anything like quarantine boredom! On the contrary, my to-do list is getting longer every day…

That was just the list of complaints, but that is how I feel now ;)

2. About remote teaching: my kids are fortunately grown up and quite good at studying. Moreover, their schools are reasonably organised. Piotrek finally has enough time to hone his coding skills, and that is what he does all the time.

I am, however, involved with helping refugee children with their homework. I have been doing it for some time, working with a family from Tajikistan. For them, remote

teaching is a real challenge. They have one computer and one tablet for four children of different ages. They are not very good at Polish, especially the girls, since their social interactions are very limited due to their religion (they are Muslims). Additionally, the teachers are not very precise when setting the tasks for pupils. Maybe they themselves are just not comfortable enough in the digital world. Children definitely get overwhelmed by the number of difficult and unclear tasks. Explaining it all over Google Meet is sometimes really tricky. I have even started to record short films about basic primary maths like fractions. There are good resources with films like that e.g. Khan Academy, even translated to Polish, but it turned out that a more personalised approach is needed here. Here is my first film about the definition of a fraction, prepared for Jusuf who is 11 years old (the film is in Polish of course) https://youtu.be/gLE0nPKaBgQ

I also prepare appropriate films for my students. I am teaching calculus this year. As a result, I have the Implicit Function Theorem and Local Invertibility Theorem with the proofs all recorded. Tomorrow I will be playing with a bit of differential geometry, since I have to prepare short films about gradient, divergence, rotation and laplasian in different coordinate systems. If you want to see the example, here is the first part of the proof of the local invertibility theorem: https://youtu.be/cZd8K0bqg8I

Ok. Enough of that.

Looking forward to hearing from you, Kasia

Dmitry Millionshchikov, letter from 24/04/2020
Moscow mathematician in self-isolation

The self-isolation[3] took us mathematicians by surprise, just like all the other professions. In Moscow, the developments were delayed by a couple of weeks, so we already knew about the success of the zoom software. Skipping the details, when you try zoom, you soon realise that you need a document camera or a tablet… what do you do if you don't have them? Within several days, they were all sold out in the IT shops; you could order one but the delivery time was about ten days, so not good for the next-day lecture. The picture below shows how encyclopedia volumes and a couple of rubber bands solved the problem.

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[2] In Poland, end of high school.
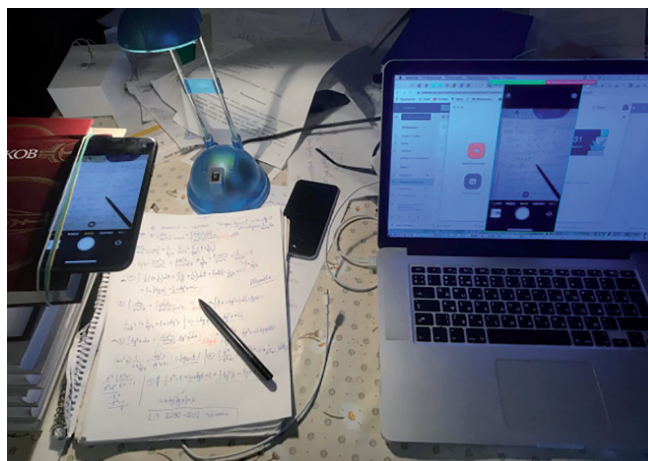
[3] This is the word the Russian government uses for working from home, apparently to avoid all the social security issues.

Funny episodes

Almost immediately, I started the "Chronicles of a Dive Online Lecturer" on my web page. There I collect the funny events which have occurred during the online classes and zoom seminars, below are some of them.

I am often asked to share the experience: "Do you get any feedback from students during online lectures?" I answer, "I sure do!" I was recently giving a zoom lecture: inspired, with voice modulation… and I proved a theorem! The students were silent. I thought I was as convincing as ever, like Albus Dumbledore from the Harry Potter saga, pleased… Then I saw the zoom chat blinking in the corner of the screen: "Dmitry Vladimirovitch, we can't hear you!" Here is my feedback! I reconnected the micro and re-proved the theorem, no voice modulation this time.

During one of the first online classes, the screen suddenly started filling up with phalluses drawn in red marker pen. My voice: Ladies and Gentlemen, we have an intruder! There are not many of us, let us take a roll-call! Remove the enemies. Who is this "Vassily Utkin"? A football commentator, says one of my trusted students. Me: No, we don't need such commentators, it was his work. I kick out the fake "Utkin". Then I hear a teenager's voice: "Guys, please don't remove me. I won't lie, I'm a stranger too. But I like it a lot here. This is my second class, and I don't understand a word of it, but it's so cool!". But it is difficult to halt a cutting ax, so no more phalluses since then.

Today I was talking about sums and intersections of linear subspaces. Rainy weather, simple formulae and the total silence of the students inspired me to make associations and analogies with more motivation, and… a non-zero vector from the intersection became a person with double citizenship, showing one passport or the to sneak through the controls. The verification of the completeness of the system of vectors was compared to a sacred ritual, "like in The Adventure of Musgrave Ritual". And, wow, nobody had read that… "Dmitry Vladimirovitch, we have watched Sherlock, but we haven't read the book"… Well, homework: to read the "The Adventure of Musgrave Ritual" and "The Adventure of the Dancing Men" by Conan Doyle, and to be able to tell the scientific specialisation of Professor Moriarty.

I was giving a scientific zoom talk "in" Saint Petersburg (former Leningrad), and since the 22nd of April was the 150th birthday of Lenin, I decided to mention it in the talk. The topic was about the width of graded Lie algebras, and I started with an old joke.

N.B.: In Russian, the words "area" and "square" are the same, and the word "fortitude" may also mean "courage" and has the same root as "masculinity".[4]

"How do you find Lenin's square in Moscow?" – "Multiply Lenin's length by Lenin's width". Cadenza from analytical geometry: "Lenin's height = Lenin's volume / Lenin's square". Oh, how tough it is to joke online: you do not hear any reaction from the audience… The chairman of the seminar took pity on me, he told us how to find the Square of Fortitude in Saint Petersburg, which is round: "multiply the radius of fortitude squared by its pi".

Dmitry Millionshchikov has also written a long article about the challenges faced by the Russian higher education system during the pandemic. It is available (not translated) here: *https://www.forbes.ru/forbeslife/402941-tehniku-i-shtativy-priobretali-za-svoy-schet-kak-karantin-vyyavil-osnovnye*

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[4] For Russian-speaking readers, we give both jokes verbatim here: "Как найти в Москве площадь Ильича?" - "Да умножьте ширину Ильича на длину Ильича!" С каденцией из аналитической геометрии: "Высота Ильича=Объем Ильича/Площадь Ильича". Ох и плохо же шутить он-лайн лектору - ведь не слышит он реакцию слушателей. Руководитель семинара пожалел меня и рассказал как в Питере найти площадь Мужества: "Умножить квадрат радиуса Мужества на его пи".