Nelly Litvak
*Department of Mathematics and Computer Science*
*Eindhoven University of Technology*
*n.v.litvak@tue.nl*

Elmer Sachteleben
*Education and Student Affairs*
*Department of Mathematics and Computer Science*
*Eindhoven University of Technology*
*e.sachteleben@tue.nl*

**Column** Better than blackboard

# A teacher should focus only on teaching

**Very often I have this conversation with colleagues: what makes teaching in Dutch universities so busy? The answer is usually the same: all the work around the courses. I couldn't agree more. I find each step of course management — from filling out Osiris description to checking the rooms to grade administration — boring and stressful. Maybe because every time I do it, I ask myself: is this really my job? Can someone else do it much quicker and much better?**

**Welcome to the new issue of 'Better than Blackboard'! Today my co-author is Elmer Sachteleben, a manager of Education and Students Affairs (ESA) at the faculty of Mathematics and Computer Sci-ence at Eindhoven University of Technology (TU/e). Elmer and I share the "big picture" vision: a teacher should focus on teaching, and the rest must go automatically. As usually, our article is brightened up with beautiful illustrations by student artist Mara Chelărescu. Check out more of Mara's art at https://cara.app/vinyllaroll.**

## Education that is not done by teachers

Let's start with a simple fact: education is a complex organizational process. With vast numbers of students, teachers, rooms, equipment, software tools, rules and regulations.

As much as I am frustrated with endless course management, I do recognize that lots of work around the courses is done without me, timely and professionally. The most obvious examples are scheduling the rooms and organizing the exams. And it is a lot of work! Just think about exams: booking the rooms, hiring invigilators, printing the exam papers, and (at least at the TU/e) scanning the answers for grading. Digital exams come with even more overhead, like scheduling rooms with secured notebooks, or digital support if students use their own laptops. I cannot even imagine how painful it would be to arrange it all by myself!

All this management work is done by people who experience the same problems as teachers: short deadlines, strict rules, lots of tasks, and resources stretched thin. I would love to outsource more tasks such as grade administration, but we are not there yet.

The topic of today's article is: what part of education, ideally, should not be done by teachers. And if not teachers, then who should do it, and how we should organize this process.

## Five expertises for teaching a course

Traditionally, the teacher's task is knowledge transfer. Most teachers love this part and want to do only that. However — with large students' numbers, attendance plummeting, students' anxiety on a steep rise [1], and educational technology (EdTech) tools multiplying and updating — every course, especially a large one, has become a complex project that requires so much more than just content knowledge.

Some time ago, with colleagues from the University of Twente, we wrote about four areas of expertise needed to run a course: content, pedagogy, EdTech and organization [2]. Today I will add one more: communication with the students. Here is my take on what these areas of expertise are about.

*Content*: This point is obvious: a teacher must be a content expert. This however is given, because this is how university teachers are hired in the first place.

*Pedagogy*: How to activate the students? Which work forms to choose? What does literature say about it? Even with university teaching qualifications, I believe most teachers are not experts in these aspects. This is only normal. We are, first and foremost, content experts. But this also means that we are often unaware of new evidence-based knowledge about how young people learn and what it means for our teaching.

*EdTech*: Most of us can handle IT systems. But I often ask myself, aren't there too many systems to handle? Here are default systems that I use at the TU/e:

- *Osiris Catalogue* for course information.
- Learning Management System (LMS; in my case, *Canvas*),
- *ANS* grading system for setting up and grading exams,
- *Time Edits* for the schedule,
- *Mentimeter* for in-class quizzes,
- *Osiris Teacher* for entering the final grades,
- *Excel* for computing and uploading

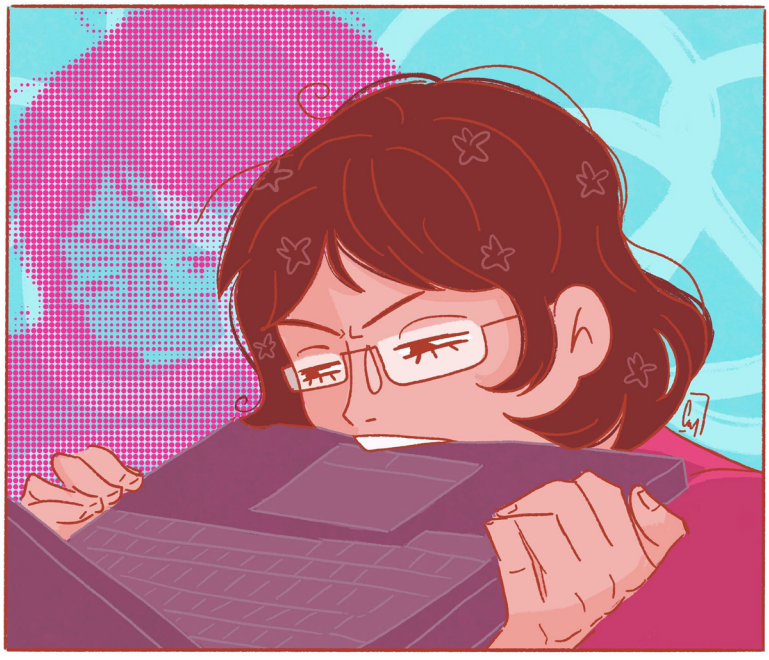

Illustration: Mara Cheláresc u

The frustrating course administration.

grades (I personally don't use it for anything else),

- Some additional system to green-light MSc thesis (don't even know how it is called).

These are already enough to overload my mental capacity. But if I want to innovate, I need to use more. Want students to answer questions while reading? Welcome to *Feedback Fruits*. Want to share videos? Welcome to *Yuja*. Want students to explore the material hands-on? You will need *Jupyter notebooks*. There are special tools for peer review, for collaboration, for chats and forums... The list goes on and on...

I know many talented teachers who don't see any difficulty in adding another tool and even create their own. But for me, including a new tool always means an extra level of complexity.

*Administration*: Managing traditional exams is well supported and therefore is relatively easy. But if you want anything extra, like mandatory attendance, submission deadlines or intermediate tests, administration explodes.

Again, some teachers handle it very well. But I often hear (and agree!) that administration around the course is a big burden that greatly contributes to our infamously high workload.

Grades must be collected from different systems that don't communicate with each other. Excel doesn't recognize students' names, because some letters have accents or double dots. I match by students' number, and guess what? Canvas treats a student number as text, while Osiris and ANS – as a number. I am sitting there, with Excel tabs on one screen and ChatGPT on the other, occasionally shouting at computer in my native language and feeling like every second of this is wasted.

*Communication with students*: I often get e-mails from students asking about rules or deadlines that are already on the LMS. Probably, you do, too. And when I check, sometimes I must admit that students have a point, it wasn't as crystal clear as I thought it was. We already wrote with Noela Müller [3] about our experience with a novel alternative grading scheme: explaining the rules to the students is a key, and it is not easy to do.

Then, there is communication with students in class. Usually, I can easily hold attention and discipline. But I still don't know what to do if the students come late or leave while I am talking. I could ignore it, but then I feel that my class is like a train station: everyone comes and goes whenever they want. I tried many things, none really worked. In a large group, I also find it hard to motivate the students to work during the class (answer Mentimeter, work on the problems) instead of waiting for solutions from me.

Finally, there is one-to-one contact, personally and by e-mail. The e-mails can be especially tricky, because they come over harsher than intended. Face-to-face communications are easier, at least for me. I believe I know how to talk to young people; I do it often and it usually goes well. But talking to an anxious student always requires full focus and empathy and sometimes afterwards I realize I was too strict and not empathetic enough.

Honestly, communication with students is such a difficult and important subject, that I am going to write my next column solely about that.

*My honest self-portrait*. Here, in Figure 1, is a simple visual of my honest self-evaluation for the five areas of expertise needed to teach a course.

Of course, I know my *content*, we all do. For *pedagogy*, I am no education expert, but I consider myself a self-learned expert. I've read and written a lot about it, and I am an expert-by-experience because I tried many different things in practice. I am ok with *EdTech*, but I am no wizard. As for *communication with students*, I've

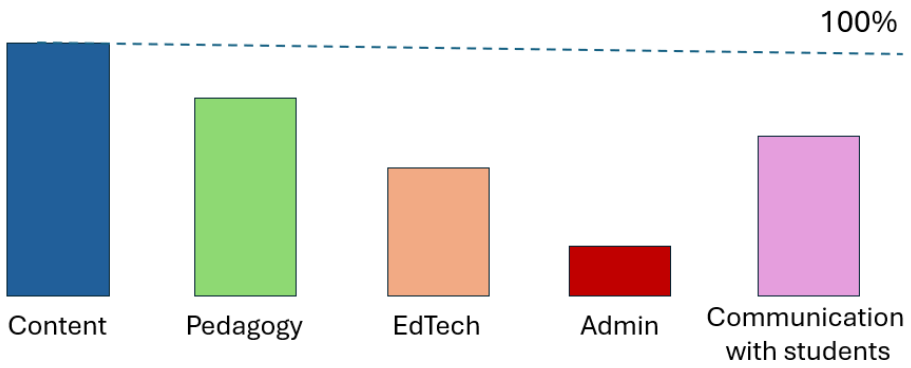


**Figure 1** My honest self-evaluation for the five areas of expertise needed to teach a course.

read a lot about this, too. I believe this is something I am reasonably good at. But I would be very grateful if someone critically checked my announcement for clarity. And I would love to keep training and improving my responses with each new generation of students.

As you see, I, by far, don't tick all five areas of expertise. And I am not a bad teacher, I won teaching awards and developed many best practices, some of which I shared in these columns. This is why I believe I need complementary expertise of others to run the course well.

**Low to high complexity of innovations**

Since every teacher covers the content expertise for 100%, I believe that complexity of course innovation can be measured by how much of other expertise are required for the novel design and its execution. By that idea, here is my taxonomy for innovation complexity. Please feel free to disagree.

I would say, a *low-complexity innovation* is the one that is mostly content-based. This includes revising the scope, revising the slides, writing or updating the lecture notes. Don't take me wrong, I know it is a lot of work! But I classify this innovation as low complexity, because it requires only content expertise and because it is 100% teacher-driven.

A *middle-complexity innovation* is the one that changes what students do in the class or at home. I wrote about many examples in this series, like thinking classroom [4], flipped classroom, and in-class online quizzes.

Recently I've heard a talk by my TU/e colleague Samantha Fairchild about the active learning form she uses in her course: an interactive mini-lecture followed by group work. You can read Samantha's post about it at the 4TU.AMI community education site MathEdN [5] (also, please subscribe to our newsletter and feel free to contribute yourself). If you read it, you will know exactly what I mean by middle-complexity innovation. There is no extra EdTech, grading or administration involved. But expertise in pedagogy is required, and communication with students is crucial. In her talk, Samantha shared that she had explained the importance of active learning to the students on on day 1, and she kept emphasizing this throughout the course. Encouraging students to talk to each other also required good communication skills of the teacher.

Finally, *high-complexity innovations* are the ones that require extra logistics, grading and administration. Mandatory attendance, for example, requires registration, and you may expect a storm of e-mails from students who cannot attend, didn't attend or — always! — didn't know it was mandatory. If there is a deadline, it will be always missed by many. If you want to give a group project in a large course, you may expect many complaints about having no partner or partner not responding. And if you want to have intermediate tests, you need to take care of everything as if it is a standard exam: rooms, invigilation, extra time — the list goes on and on. When you must arrange all this yourself, you realize how much work is done by services for the standard exams!

One example of high-complexity innovation is alternative grading for a large course. Noela Müller and I wrote how we did it for a Probability and Statistics course with 300 students [3]. The system uses many intermediate tests with many retakes. I like alternative grading and believe it's the right way to go. But organizing this and managing the grades is a lot of work, and it must be done every year. It is also difficult to communicate the rules to the students, and they often write e-mails with all sorts of questions.

By this complexity scale, I often stop at middle-complexity innovations. But we could do so much more if we didn't need to worry about logistics, grade administration, and at least some aspects of communication such a transparent structure of the LMS site, clear communication of the rules, etc. Professional help with these processes will reduce teachers' workload and improve education at the same time!

Unfortunately, when I brought this up to the board of my department, the answer was not very hopeful. The services are already very busy with schedules, exams, Osiris, and other tasks. For extra tasks we need to hire more people. This will be a direct burden on our budget, while the extra work of current teachers is not on the books, and the effect of their reduced workload is indirect and hard to measure. This is a disappointing answer. And understandable, too.

**Advice doesn't help**

It is not true that the university doesn't support innovation. Usually there are education specialists that can help with pedagogy and EdTech. However, most of the time, their help comes in the form of advice. An education specialist will tell me about interesting work forms, but I am the one who must implement them. And often enough, if I have a question about Edtech, instead of direct help I receive a link to a manual.

My main problem with advice is that it creates only more work for the teacher. And this is not what we need. Teaching is lots and lots of hands-on work. In Dutch, there is a nice expression for this: "meters maken" ("walk the meters"). Advice is helpful only if the advisor does their share of implementation. If they walk the meters with me.

**The teacher must be able to focus on teaching**

Enter Elmer Sachteleben. Since recently he has been appointed as a manager of Education and Student Affairs (ESA) at my department of Mathematics and Computer Science at the TU/e. Before that, he organized professional education in industry.

I've met Elmer at a meeting of Education Management Team, and I couldn't believe my ears. Elmer expressed exactly the same vision as I had for years:

The goal of a teacher is to transfer skills and knowledge, spark critical thinking and educate engineers of a sustainable future. The teacher must be able to focus on this.

According to Elmer, all other aspects of the course should be handled by what he calls "Professional Services". It is a large machine, of which the teacher is the driver, and the complete organization around them is working seamlessly and timely so that the teacher can focus on their classes.

When Elmer shares his experience with industry, it sounds like Utopia to me. In a commercial setting, the teacher gets the schedule and must be ready to teach. That's all. Not only are the entire logistics and administrations arranged, there are even professionals who make slides!

Elmer often says, the teacher must focus on the content, and everything else must be taken care of. Well, if I could focus only on the content, and the rest was taken care of, I would feel like a star! And I

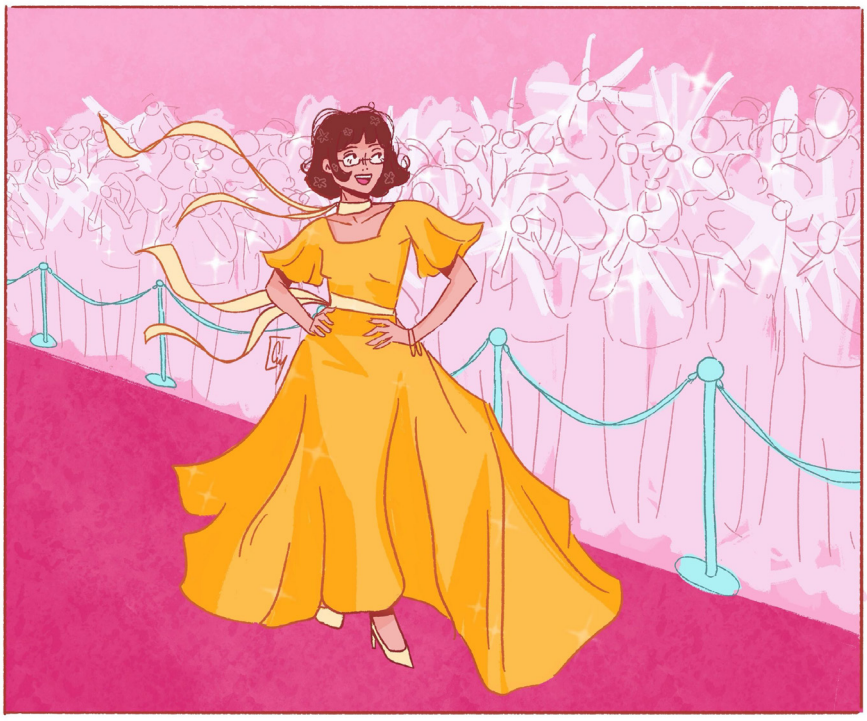

Illustration: Mara Chelărescu

If I could focus only on the content of my courses, and the rest was taken care of, I would feel like a star!

sure feel very far from that when I stare at an error message of Osiris Teacher...

**Unproductive antagonism**

Unfortunately, we are not at a great starting point for rewiring the course logistics to the point when the teacher can focus only on teaching. The rewiring must be done in respectful and equal collaboration between teachers and services. And, sadly, there has been quite some friction in this relationship.

I often heard colleague teachers lamenting about support's slowness, out-of-office replies in the middle of the quarter, and so many forms coming our way that it's not even clear who is supporting whom. Unfortunately, in these complaints I have also heard mild to strong tone of condescension and downward hierarchy. Obviously, this is not a great start for collaboration. Nobody likes being looked down on!

But it takes two to tango, and I often have felt that people who help with our education are not aware of all the tasks that teaching and scientific staff must perform besides their courses. I personally saw a poster in an exam office "If you cannot plan well, it is not my problem". I came right at the last moment to submit my exam for printing, and I felt called out and very uncomfortable. I also heard support staff referring to teachers as "people upstairs"; the reference was purely spatial as scientific staff literarily occupied the top floors of the building, but I felt called out again because "people upstairs" doesn't sound to me like "people with whom we do great things together".

In the book "Social Physics" by Alex Pentland [6] I've read that some organizations improved significantly when different departments moved closer to each other because it improved information flow and mutual understanding. So maybe, for better education it makes sense to mix the teaching staff and services at the same location? Maybe, if we hear about each other's ambitions and challenges every day over coffee, we will gain greater mutual respect and empathy?

One way or another, if we want a seamless workflow where teachers can focus solely on teaching, mutual respect is a good place to start.

**New framing for support**

As university teachers, whether we design a course or write a research article, we know how important it is to tell the right story. Elmer and I both believe that the course management needs a new story, too. And every story starts with framing: how we position the idea to evoke a positive response.

Both Elmer and I don't like the current framing of "teachers' support" or any of its variation like "course support" or "educational support". "Support" sounds unfairly inferior. Even if a teacher is a content expert, content is not everything. If we want the system to work smoothly, everyone in the system must be equally respected for their contribution and expertise. "Support" is an unfortunate framing also because it is so vague. We need a framing with well-defined respectful roles. "Support" sounds reactive, and it is reactive in practice as well. This is what I've heard from some educational specialists, and it was one of the main points that we raised in our position paper at UTwente [2]. To get support, a teacher must ask for it. This adds another layer of communication, while responsibility remains with the teacher. As a result, a teacher often decides that it is easier to do everything themselves even if support is available.

While Elmer and I both share the "teacher-should-focus-on-teaching" vision, our favorite framing is somewhat different. Elmer's framing is what he calls "Professional Services" and mine is what I call "Teaching Teams" as we called it in [2].

**Professional Services**

Elmer has a clear picture of what Professional Services should look like. This involves the use of educational specialists to innovate and act as sparring partners to teachers. It also involves rolling out programs and courses from planning stage to execution, including close out and capturing lessons learned.

The ultimate goal of Professional Services is to have teachers worry about their course content and teaching skills, and have Professional Services do the rest. A teacher is the end responsible for a course and acts as internal client.

Professional Services are grouped in competence centers and steered by educational management. Think of centers for Educational Advice, Program Coordination and Quality Assurance. This helps to learn fast because the competence centers maintain the knowledge and best practices gained from all courses.

Professional Services are not the same as support like we know it. "Support" suggests only providing ad-hoc assistance.

Indeed, except for scheduling and exams, this is exactly how support feels to me now. In contrast, Professional Services take full ownership of the systems, logistics, and operations behind courses, so teachers can focus entirely on delivering high-quality learning. I believe that "ownership" is the key. Professional Services and the teacher feel equally responsible for a high-quality result.

The modus operandi of Professional Services is the PDCA Cycle: *Plan*, *Do*, *Check*, *Act*. This is a common best practice in industry. One may say, academia is not industry. But given the huge student numbers, it is fair to say that our education has reached an industrial scale. And therefore, we do need a structural approach to effective operations and continuous improvement.

The cycle repeats itself after each course, implementing improvements in small steps at each iteration. Here is how this is supposed to work.

*Plan*. Design and build a course or program, balancing quality and pedagogical wishes with time, money and capacity. While many teachers might be very experienced themselves, professionals can help manage their courses efficiently. They take away inefficiencies in the grading process, inconsistent course setup, last-minute scheduling issues, or organization and communication overhead. Nothing is forgotten during preparations: running a structured pre-course checklist, scheduling, quality assurance, exam planning, and LMS and grading setup, flagging missing elements and follow up until everything is confirmed. Professional services do this proactively instead of teachers chasing and pulling the system.

*Do*. Experienced course support officers provide coordination with IT, facilities, invigilators and assistants, operating the learning management system, assuring that all equipment and rooms are prepared, and processing the grades. For large courses, this is quite an effort, and these services take significant amounts of tasks and problems out of the hands of teachers.

*Check*. Quality Assurance tracks courses and programs. They run student evaluations and also analyze objective quantitative metrics such as teachers' grading efforts or students' attendance. The focus on objective measurement is important to steer up quality based on facts and on evidence-based quality standards.

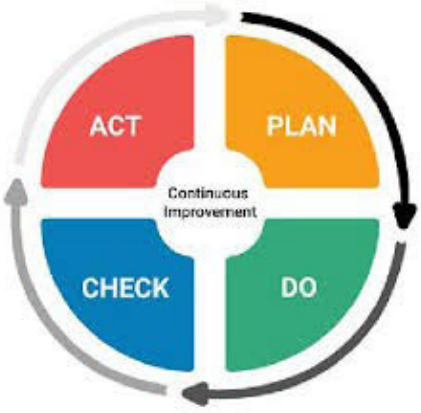


**Figure 2** Plan-Do-Check-Act operation cycle of Professional Services.

*Act*. Measurable performance indicators make problems actionable. For example, if many students seem to struggle during early tests, there might still be time to adjust the lectures, example problems or even the final exam. If attendance and activity reduced by large during the course, maybe it makes sense to investigate why. If some students show no activity, maybe it is a good idea to reach out to them and ask whether they plan to continue or drop out. If some students have dropped out, they should be removed from the course and all groups; hopefully, this will reduce the problem of irresponsive groupmates, which is very frustrating for active students. Once the course is completed, a proper close-out involves capturing lessons learned for the next time.

In Elmer's vision, the Plan-Do-Check-Act cycle is repeated every year. The key is that Professional Services partner with teachers, and this way education becomes a joint co-creation process. Based on his industry experience, Elmer is convinced that this is the right way to deliver a high-quality education in a sustainable way.

## Teacher and Professional Services

As a teacher, I like many aspects of the Plan-Do-Check-Act cycle. Yes, the "Plan" part also means that I cannot innovate as I please: there must be enough resources and sufficient evidence that the innovation is promising. But I don't object; this is only fair. The "Do" part is absolutely my favorite; you guess it, I love to see the grade administration on the services' list! Also "Check" looks attractive. Learning analytics is powerful, but to be honest: I just don't have the time to do it well. If someone else can track students' activity and report this to me, that would be great!

So, altogether, as teacher, I support Elmer's ideas.

However, I am a little worried about the view of a teacher as a client of Professional Services. I feel that customer-service relationships are somewhat foreign to academia. I observe that students increasingly behave as customers, and I don't like it. I feel that these customer-service relationships undermine the core idea of higher education, which is all about academic network and community. I am afraid that being a customer of Professional Services will evoke similar feelings.

I am also worried that Professional Services will dictate their own schedule, like doctors or delivery companies. They may ask me to work on a course in my teaching-free quarter, when I planned grant writing and conferences, and they might not be available in August, when I do most of the work for my quarter 1 courses.

Elmer agrees that the academic setting requires flexibility and sufficient space for our many tasks such as research, conferences, fund acquisition, and mentoring junior researchers. But he is optimis-tic that we can find the right balance between running efficient high-quality education and giving the teachers their freedom of mind, their choice of tools and priorities in their schedule.

Nevertheless, my own framing, developed with my colleagues from the University of Twente, is slightly different and, I feel, more informal: the Teaching Teams [2].

## Teaching Teams

The idea of Teaching Teams is very simple, and it is, too, inspired by best practices in industry.

We see a course as a project. The project requires the five areas of expertise described above. So, besides the teacher, each course must have a team, assigned to this course, that together have all required expertise: a content expert, an education/communication specialist, an IT specialist, and a course manager/administrator.

Some of these roles can be combined, but each course must have all roles covered.
The key idea of team's operation is similar to that of Professional Services: the non-teaching staff (education specialists, IT specialists and administrators) don't stop by advice. They do the work, "walk the meters" together with the teacher; they take a specific bulk of work off teacher's hands.

I've run a couple of Teaching Teams pilots. My best experience was when an education specialist set up the LMS site for the course. They have good templates and they know the features much better than I. The sites made by them looked professional and their work saved me a lot of time! I also believe that education specialists are the ones to write the syllabus for the students: the course structure, the deadlines, the instructions for assignments, the grading system. I had an experience when an education specialist wrote instructions for the students for a course workflow and a peer review assignment. I believe they explained it better than I because some things are obvious to me but not so obvious to the students.

If there is an IT problem, the IT specialist should not send a manual, but fix it. I have some very positive experiences with that as well.

One thing I learned from the Teaching Teams pilot is that contact with students cannot be outsourced. The students see the teacher as a contact point, and this is the right way to do it. It should be the teacher who answers e-mails and posts announcements. But other team members may draft the announcement, post FAQs, or discuss how to reply to an anxious student. I believe this will be a big help!

The administrator should feel responsible for the entire course management, from setting up preparation meetings to tracking learning analytics to processing the grades. Unfortunately, up to now, if I need any help, I am the one who must ask for it and set up the meetings. Such a pull system is exhausting. It disincentivizes teachers from using any support at all. But if someone else takes care of coordination, the teacher will be likely willing at least to hear what the team has to offer.

In [2], and when running the Teaching Teams pilot, we envisioned that all members of the team felt equally responsible for the course. For a teacher, education means a long list of unforgiving deadlines. Like in the show business, the show starts not because we are ready, but because it is Tuesday 8:45. The entire Teaching Team should experience this pressure as well. They should not take holidays one week before the course or send an autoreply on the day of an IT-intensive test, when the questions from the students are pouring in.

A Teaching Team is a project team. No one is a client; no one is a service. Everyone is working together to make the project a success.

Elmer recognizes a lot in the Teaching Teams idea. He believes this idea is much closer to Professional Services than it may seem. Indeed, the core principle is the same: a course should not depend on the individual effort of a teacher alone, but on a coordinated team that shares responsibility for its success. We both strongly agree on this principle. Where Elmer adds nuance is in how to organize that responsibility so that it remains sustainable at scale.

The idea of Teaching Teams genuinely speaks to both Elmer and me. I am used to the shared responsibility in small teams when writing a paper or organizing a conference. But to be honest, once we start talking about translating this idea into a sustainable organizational change, I am out of my depths. I trust Elmer's professional experience of organizing smooth education processes. If I compare his organizational experience to mine, I am sure he knows better. So, as long as he remains open to teachers' input as he is now, he can count on my support for Professional Services. And I trust that in the new workflow there will be space for the informal collaborative spirit of small Teaching Teams.

**A teacher cannot do it alone**

Professional Services or Teaching Teams – these two ideas have the same starting point: a teacher cannot and shouldn't do it alone. If we want to implement modern education, with active learning, contemporary grading, and clear communication and empathy towards the students, different specialists must work together.

The best practices of such collaboration have not been established yet. It is a bumpy road, and it will be so for a while. We must be prepared to meet skepticism, and to make many mistakes on the way. Yet, we believe that collaboration of different experts on courses is the right way to go. If we succeed in making collaboration between teachers and services truly seamless, we can significantly improve both quality and workload in higher education. Large courses are a good place to start. And the right time is now.

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