

## Future-led Learning: Maija Taka

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*My name is Riikka Evans and this is Future-led Learning. Maija Taka is a postdoc researcher and project manager at Aalto University School of Engineering. For almost five years, Maija has been developing practices for doctoral education and supervision in The Water and Development Research Group. My colleague Sara Rönkkönen, the pedagogical specialist at Aalto University School of Engineering, met with Maija and discussed about doctoral students' learning, support and wellbeing. Welcome aboard.*

What is the role of supervision and support in doctoral studies and doctoral students' learning and well being as well? Today we're discussing with Maija Taka, a postdoc researcher and project manager in The Water and Development Research Group at Aalto School of Engineering. Maija is also innovating new culture for doctoral students' instruction. I'm Sara Ränkkönen, pedagogical specialist at Aalto School of Engineering and your host today together with our production, Saku Heiskanen. So, Maija, warmly welcome and all the listeners, warmly welcome. So Maija, you have a background in physical geography. And both your master and doctoral thesis have concentrated on the spatial drivers of stream order, discharge and quality. What made you get interested in doctoral students supervision and wellbeing?

I need to go a bit back to history. So yes, I did start a physical geography and at some point, my goal was to become a teacher in geography in high school. So I did pedagogical studies, and I was aiming towards becoming a teacher until I realized that that's actually not my passion. So I ended up falling in love with urban runoff problems and such water quality problems. So I defended my PhD in physical geography and water quality issues. And it was a time for new fresh opportunities and postdoc is supposed to bring something new, and create a new path, researchwise to yourself. And it was a great opportunity to get back to those pedagogical things and actually combine them with water research. And for me, research groups are a valuable setting for creating collaboration, getting support, growing together, but it needs

special attention on the culture, the community and the practices the group is based on.

And I've heard this thing called Majakka. Well, what is that? It's it's a Finnish word meaning lighthouse. But what does it mean in your context?

It's a project where we are working in, and actually the project's name is created by our PhD students in the project, and they were thinking about something that is needed when you're in the rough seas of doing a PhD: you need some sort of a support guidance, a reliable thing that helps you to the harbor of getting a PhD. So they ended up calling the project Majakka. And I really love the story behind the name.

Yeah, that's beautiful.

That the project is about creating and developing practices for doctoral education and the collaboration so it's it's team effort. And by concentrating on these, we can also advance water research itself. The core of the project is six PhD students, and they work on their thesis related to water resources, and sustainability on water. And we work with the students and we aim to innovate and pilot different kinds of practices and developing structures for the supervision and for the collaboration. And these practices are then improved, piloted again and distributed to other groups to learn more about the unique settings and of course, also common nominators in doing a PhD and research.

Majakka is now working in in your your school in your program, have you or could those be also taken elsewhere in order at Aalto University to other programs, the learning learnings from your experience,

it's our fifth year in the project. So I feel that we've learned a lot. And it's about time to co-create the practices with other research groups as well. So we know that they fit well to water engineering, but how about if we go to other schools in Aalto or other research communities and traditions and practices? In the project, we have organized loads of workshops, and we have a really open communication culture. So there's a lot of knowledge created, of course, the dead ends as well, as you mentioned. But based on our experiences, and based on the experiences of our PhD students and advisors, we have

identified the points of likely failures that are the classic points of insecurities or failures, and the common threats to well being, which you probably know well, as well, and the critical resources that support doing a PhD, that support mutual well being and of course, the success in work. And along the way, we actually understand that it's not just the practices, but it's actually the culture as well. So it's a combination of these both. So as you mentioned, we work in The Water and Development Research Group, and one of my colleagues characterizes a group as a group of hybrid hierarchy. So it means that we have a low hierarchy and equal respect for all the members in the group. But we also have a support from the leaders on decision making when it is needed. So we can trust the hierarchy as well. We also value diversity, we can come from very different backgrounds. As you mentioned, I come from physical geography and no one working in that group of engineers. We are very open on communicating anything, whether it's success or insecurities, failures, challenges, we are really transparent on that. And one of the key findings is that high quality supervision and support is actually a team effort. Our Professor Oli Varis calls us a football team, so everyone has their own role, and individuals can't success without the team around them. So it's advisors as a team and structures for smooth and inclusive process. We do have advisors inside Aalto, we also have external, even international advisors to enhance the diversity in the group and bring their knowledge to the group I even bring their skills to the PhD process. And this creates a setting where we can learn together, we can brainstorm ideas together. The support is bold and ongoing. And we can even create some radical research because there's a lot of ideas and a setting for great ideas. And maybe the third thing is practices for peer support. This is maybe a bit more concrete outcomes of the project. So we've identified that there is actually really fruitful opportunities for creating peer support along the way. So we have a community called rookies club. And it's a community for students who have just started doing their PhD. They have loads of motivation, they can even be called that they are on the honeymoon of their PhD. But they have very little knowledge about the process itself. So they have really maybe even a naive idea of the process. So we bring these students together. And we make use of the knowledge and experience from more merited colleagues to support them and to bring experience to them. The other end is a synthesis group for the students who are writing the summary of their thesis. And it's a classical point for huge identity crisis, like thinking that "okay, this is it", or "there's no value in my work", or "there's no novelty" or, "I've worked with the same topic for so long, like I'm so fed up with a topic". So we bring in the synthesis group, so that they can work on the summary together. Synthesis a lot about piling up the knowledge and summarizing it and just summarizing the work for years, all of a sudden, so it's great to have the synthesis group to grow in together. And it's also about documenting. We even have like an online document where we pile up all the knowledge which you can't find from Aalto Into sites or anywhere else, so we try to make a perfect book for finishing a PhD.

Have you received feedback from your PhD students? What happens after graduation? Do you have a system on or is based on one on one communication?

Well, from the Majakka project, the students haven't yet defended our graduating, but we are actively in contact and in collaboration with alumni from the group, and they really value the community and the support they received during their PhD. And one interesting finding is that they don't understand their competence or how skillful they are, until they leave the academia and they go to work somewhere else. Then when they're surrounded by someone else than highly competent academy colleagues, they actually understand the value. And actually, this, to identify your own competences, is something that we should more focus on in my career so that the PhDs actually understand the value they're able to express or communicate their competences to others as well.

And now that you mentioned the competences that made me think of transferable skills that you seem to be providing through the supervision to your doctoral students. How do you see the role of the transferable skills in doctoral education? Or the role and the role of guidance as well?

Well about transferable skills, at least in engineering, they can easily be easily be forgotten, because they are something that you learn along the way. They are something that you're may not actively teach or support. But they're also something that are really important in advancing your career and like selling yourself to the next job. And I tried to think about those skills and tried to even work them or identify them, and I came up with a few. So feel free to comment on these or add on these. So I feel that PhDs are capable to learn and adapt quickly. They can be critical and analytical. They are capable to make use of academic knowledge in their work, whether it's in or outside the academia. PhDs have good collaboration skills. And usually they also have wide professional networks that they can use in their work. And especially in Majakka, I've learned that PhDs are willing to take risks, they have increasing resilience to failures, which are, well a normal part of doing a PhD. They are committed to project oriented work, and they have a proactive attitude to lifelong learning and willing to solve even grand problems in the environment. Do you have anything to add?

That's a great list than what just just made me think that yes, these are favorable skills that hopefully a graduate will have. But you also have to teach those skills. Of course, some of them you learn by doing but a lot of them is something that you need to actually focus on and learn as a skill.

I also recommend coaching in Aalto because that's a great kind of a support for even identifying your own competence or those transferable skills. It's really difficult to do reflection on those kinds of skills. So make use of your colleagues , make use of coaching, whatever resources to be able to better identify your own excellence,

A great tip, identify and verbalize. How about the guidance?

Well, I can't express how important guidance is in doing a PhD, no one should be left alone. Guidance and support they, they create the setting for working, for learning and for growth. And it's not just about the students' growth, but growing as a team and it's very critical, especially in the beginning, as I mentioned that we identified few of these threats, so especially in the beginning, we need to ensure that the students have the feeling of belongingness, they have efficient resources in terms of whether it's about help or knowledge, ongoing guidance and support for doing the PhD and finding the increasing independence in doing the work. So, PhD students shouldn't be independent from day one.

That is true. That is true. It's independent work but not too not meant to be done alone.

Definitely. It's a growth process.

Yes. So now after after listening to you, I would be very eager to hear, like what would be the kind of easy beginnings or low hanging fruits that that we get, I mean, the listeners out there who are supporting and guiding their own doctoral students, what could they do?

Well, development is a never ending process, but initiating it actually needs just the baby steps. So it's not rocket science. If you're a supervisor or a team leader, you can well enhance communication inside the group that brings

people more easily together, like, now we're all using teams. So create channels or community, for your own group, create structures for peer support. So bring like minded people together, or if you have a PhD student who might need help in a certain method, or finding data or preparing their first paper, whatever, looking for a conference, make use of the more advanced people in your group to help and create that kind of structures. For individuals, it's really rewarding to be able to help your colleague or know that you have supporting colleagues quite close to you, even though we are working remotely. So really baby steps, and in time, you will see quite big difference.

**So this Majakka has been a project. What happens next?**

The idea of the project is to initiate the change and develop the practices. But as mentioned, it's a never ending process. There's a lot of new beginnings in all this away are attending or participating in creating staff training for doctoral thesis advising. We're trying to create new processes and best practices for the supervisors themselves. And we're also participating in piloting new kinds of courses. And I actually need to tell a story about a course I attended a few years back, it was organized by the Aalto Ventures Program, which focuses on entrepreneurship education throughout Aalto and I had no knowledge on the field. But I decided to take the course. It was a four day course and prevalent a third day, I realized that or they told me that I've been following entrepreneurial ways of working throughout the course. And I was a bit against because I was saying that no, these are like research practices, and like research, process skills. And all of a sudden, I realized that doing a PhD or doing a research project is quite similar to entrepreneurial skills. And that opened a whole new world to me. And this fall, we've been piloting an entrepreneurial tool or a skills course with the Aalto Ventures Program called Impact From Research. So I highly recommend that course for all PhD students and young researchers.

**That sounds interesting, can you, in a more tangible way, give me some examples on... What does it mean in practice?**

Well, if you think about high quality PhD theses, in the society is someone with a problem and research aims to help with that problem, create solutions. In entrepreneurial ways, you need to first find your client or end user and communicate with them to identify what is your problem, don't make your own assumptions, be active and communicate, work on the problem

together, create knowledge and data together pilot, do reruns, do risk taking but make sure that it's not too big risk and polish the product until the end user is happy as well. So, a lot of similarities. And in entrepreneurship, that process is really well defined, whereas in PhD, it could be quite vague or unclear and confusing even, a lot of like uncertainties and unknown things. So learning from the entrepreneurial way of working and bringing that to PhD I think that's one excellent low hanging fruit for us.

**What's your guidance philosophy? Or what's the philosophy at Majakka.?**

Close your eyes and think about a basket or a bucket with a lid. That's our vision for a PhD, so it goes beyond the thesis itself. So... in the basket, the lead represents the thesis a printed book, and traditionally we focus only on creating that, the printed thesis. In reality, it represents only a thin slice of all the learning of the past years during the thesis process, and in supervision, we want to see the basket of all the invisible learning. And we state that up to 80% of all the learning, you can't read from the thesis itself. So you need to open the lid and see inside the basket. There's identity building, there is the increasing resilience, risk taking, project management, impact making, ah, dead ends, new beginnings. There's a lot of valuable learning and we should be valuing, and even celebrating that as well. So not to focus only on writing a thesis itself. And in Majakka we see at that PhD should be a project of learning and developing together, not just doing research in a project, and it should have a strong focus on career building, and individuals. And these altogether will then contribute to high quality research outputs as well.

**That is very encouraging. I've also heard, or I've listened to a couple of episodes of another podcast where you're, you've been hosting with our psychologist for doctoral students, Maria Törnroos, would you like to tell us a bit more about that?**

Yes. The podcast focuses on PhD and the process itself, the roles, expectations. With Maria we try to bring knowledge from the field and we also try to summarize literature, focus on wellbeing meaningful work, trying to help the listeners whether they are advisors, supervisors, PhD students, or even individuals thinking of whether they should do a PhD, just to create, support and introduce good practices for managing your work, recovery, enjoying a PhD, how to supervise a PhD, how to make sure that the work is healthy. So I recommend listening to the episodes.

And what was again the name of the podcast?

The Best Thing Today.

Yes, highly recommended. Thank you, Maija.

Thank you.

*Thank you for listening to the future learning podcast. This time your host was Sarah van cannon, and the episode was produced by me Sakari Heiskanen. It included music by Siddartha Corsus and the Future-led Learning theme by Saagertson.*