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Speaker 1: The actual interview. Could you please briefly introduce yourself and the context of teaching and research that you do?

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Speaker 2: Yeah, sure. Um, so I'm working in the at the U t now for what is it for three and a half or four years, though? I must be four and a half years, I guess, in an assistant professor position. And before that, I was doing a postdoc research. So when I came here, I did some teaching before, but that was when I became really, yeah, I was completely well, how how would you say it's I'm looking for the right term, but I became immersed in teaching, so I got a lot of responsibilities in teaching module coordination at the bachelor level, et cetera. And at the same time, I started my university teaching qualification process. So you just mentioned like Blooms taxonomy and constructive alignment and those kind of things. So it's really, yeah, over now for period of perhaps one and a half years or something, I've been thinking quite a lot about teaching and learning in practice and thinking about it and trying to develop my own way of teaching. Let's say my own ideas about it. Um, and in I'm teaching, in civil engineering, in the Bachelor and in a master program. And initially, mostly in the Bachelor program. And we work with, um yeah, the twente education model. You are familiar with it, I guess, where knowledge is really applied in projects and I'm mostly teaching in the second year and they're the projects are also really kind of interdisciplinary. So it's really, um yeah, a bit more challenge based education, I would say. And the in the first year, I was involved in a module called Sustainable Civil Engineering and Module Area Development, and I was coordinating both of them. So, um, really? Yeah, linking to the projects and making sure that everything was going well. And eventually I decided to only continue with the module area development. And in in that module, I'm teaching a course on stakeholder analysis and management, something on climate change adaptation. And we do a project together with the municipality of Zwolle. Our students get an opportunity to actually apply. We have two easy courses for different ones and then also some more project based education and students apply it all in one big integrated project that they also present to the municipality. So that's an important thing that I'm teaching. I'm teaching also a couple of smaller things, but for me, this is a big chunk. Let's say the the other big chunk in the master's, I would say, is we started developing some education around resilience and um, first of all, the combined course with sustainability. So it was a bit of a broad introduction, sustainability and resilience in the and circularity as well. Actually, I was in civil engineering and then we did. A students could choose to do a resilience assessment or circularity assessment, kind of. So I was involved in a resilience assessment. And then we also worked with the municipality of Zwolle and I actually did. The whole course was really well received, but it was too big of a topic to combine, combining one course. So from that, we developed a new course which is called urban resilience and integrating climate, and that master course, I've been experimenting a lot with new ways of teaching also develop interacting with education specialists because I really wanted something different, let's say, because in that first sustainability and resilience course, while we introduce some key concepts and then they were assessed in an exam. And I thought it was just such a nonsense to do it, wasn't it thinking? Because that's, I think, what my association is with higher order thinking skills is this, you know, I'm I'm asking them almost to remember things that I read in an article or something. And then I ask if they still remember and it was really unsatisfying.

transcript

So I think, OK, this is not the way to go for me. And then so I was really looking into things and reading up a couple of things, and for my master course, I decided that's a reflection will be a very important part. So I ask students to prepare portfolios, their work with concept maps, a lot of things that are not common. And students also really say like, OK, this is one of the things they hate it or they love it. But most of them love it, that they're not assessed in an exam. And that is really I'm asking them something really, really different. And maybe before I continue, what I thought was very interesting in the corona period is that for the bachelor level, I always thought, Well, you know, it's we just want them to learn the basics, and we also assess it in the example. Well, I wasn't too happy about it, but they apply things also into projects, and then corona came in, of course, because we had to make the switch in the very first period immediately. And that meant students had to open book exams because they were making the exams at home, and we were challenged as teachers to develop really understanding questions. And instead of remembering questions because it was open book and there was also so much better and I felt I was reading more, assessing what I want to assess, actually. So from now on, I will always do open book exams because I feel at least I get closer to assess the things that I want to assess. And instead of the remembering part, because the remembering part I'm not interested in, I'm a person who looks up everything. It's myself in books or articles because I forget things all the time, so I know that I had that or somewhere that's written down very nicely and I look it up. It's how I work. And I guess I think it's a modern time. Let's say that we can look up everything all the time.

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Speaker 1: I totally agree assessment techniques are not yet quite robust yet to probably evaluate what students really learn and want to learn, rather than just remembering the facts and recollecting it.

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Speaker 2: Yeah, yeah. But open book exams are already a big improvements. I find.

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Speaker 1: That was quite a revelation for me when I actually moved to Europe, but especially one of the institute I studied Masters is Interdisciplinary Research Center, known for newer pedagogies. So when faced with that thing, my curiosity as a student was also higher and was very happy about it. Not just, you know, want remember things. Yeah, but that's great. So with that, I totally get an understanding, and I'm really glad to have your contribution because it's kind of fitting to what I want to do in my research. What would be your understanding of higher order thinking skills? If you have one or many, please feel free to elaborate in a different context of the course.

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Speaker 2: Yeah, I think it's for me. It's really important that students learn to be critical and to reflect and connect to societal context. I, I was very. Yeah. So for me, it's that they really become self-aware and that they become critical thinkers. For me, that is super, super important. So in my urban resilience course, a lot of said I asked students to prepare a portfolio. Maybe before I explain this, I also have to explain you that I'm very my education is very much inspired by self determination theory. So autonomy, competence and now I

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forgot the third one. This is what I mean. I look up things all the time because I forget things. Are you aware of self-determination theory?

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Speaker 1: Now I only know self-directed learning.

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Speaker 2: Maybe it's almost the same or not. Or yeah, it could be almost the same. It was. It's about autonomy, competence and now the third one, now it comes a relatedness so that students feel related to each other in the classroom. I find it super that autonomy part whenever it's possible, I give students the possibility to choose what they want to learn and of course, within certain framework. But that's super important starting point. So I can send you the information that I came across about about reflection and and I was also inspired by my own university teaching qualification process, where the first thing they ask us is also to assess yourself, like, where are you on this topic? What do you already know about it? What did you learn in the past what are your own learning objectives? So the first thing I ask my students is, OK, why are you in this course anyway? And also during the first lecture, I say, OK, if you don't like this way of teaching, you don't like the topic, please leave. You know you don't have to be here for me. It's your choice. You participate if you want. If not, then go take on a course. Fine. I don't care at all because I have more than enough students. And then I ask them to to prepare a self assessment to really reflect what skills do you bring, what knowledge do you bring? And especially also that skills part students sometimes find difficult to to to think about. And then ask them to formulate their own objectives within the frame of learning objectives of the course. But which ones are really important for you? And then every we have we work with, with lecturers and also with some tutorials because they also now this year, we added some small school assignments because students found a course sometimes too abstract and too high over, let's say, and we offer a lot of materials, but students can really decide themselves what they want to read. And there is a minimum. We say we you have to site at least so many references, but they make like summaries of the literature they find most interesting and and in-depth summaries of the literature we always ask them to be to also reflect, for example, different perspectives that are provided in the literature. That's part of that's critical thinking, like, are you able to explain to me, yeah, that's ah, maybe competing perspectives and literature on certain phenomena. And then they build up this portfolio over time, and they also get some formative assessment over time. And then we ask them, we divided the course to this year, we had five topics or four topics on into chunks, let's say, and each chunk cover it in like at least two lectures. And then they read a couple of things and then I ask them to, OK, so what did you learn from this? What what they have to reflect on? What did you learn and how is that them relevant to society and to to civil engineering domain? And also what questions are still in your minds? So it's. So what did you learn? So what' and now whta? What questions kind of so really asking them to to engage in the process all the time, like over different points in time? And then in the end, they have to make their full portfolio and they summarize all these different topics and show that they are critical thinking that they have this academic skills to deal with literature in the right way and so on and so on. And they close with their big reflection, where they also reflect on their original learning objectives did I achieve them.

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And what else did I learn? How is this relevant to society to my future professional working domain? And yeah, what questions are maybe still in your mind?

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Speaker 1: Indeed.

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Speaker 2: So that is the the structure. That's the portfolio structure. And yeah, so yeah, for me, learning and assessment are in that sense very much related somehow, because how you assess things is so much influencing what you also the way you learn or how you learn. And um, and the nice thing is because our students to one minute, that's my husband wants to get a coffee and makes an awful noise. So I'm just muting myself or. And. So, yeah, it's done. And. Yes, and the learning any assessment part of very much related and yeah, the nice thing about this is that I read those reflection reports. So I also it's it's it's a tremendous amount of work, so we try to divide it a bit. And next year we will give less formative assessment because it's undoable because this year with 50 students, and it was way more than we expected anyway. So that's the struggle we still have with this way of assessing. But if you it's so nice to read those reflection reports and especially to final reflections, and it's all different stories like all students report on. Oh, I, that's in the beginning. They are right. I'm really interested in that part of the course. And in the end, they sometimes learned very unexpected things. So they set back a dystopic came so unexpected to me. For example, we have a topic on participatory modelling as I learn a lot about modelling. I never realized that that could be done in a participatory way. This was such an eye opener for me. And or, yeah, oh, I finally got to grip or of my learning process. So I have also set up in beginning the concept of just introducing them to the key concepts and providing definitions. And I reflect on different approaches. And then we also give them more practical assessment tools like frameworks that you can really assess resilience and that they also report like over the time they're like, OK, now I get more to grips with the concepts, or now this is happening to me, or no death is happening to me or that this has been happening in my trajectory. And that is super nice to read. And it's so it's for me. It's such a different thing than assessing an exam because they report their own learning journeys through through.

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Speaker 1: And I myself will recognise that I am also a teacher at ATLAS.

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Speaker 2: So, yeah, there, of course, this way of working is pretty normal, but not for our students.

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Speaker 1: This did so. Yeah, I mean, thank you so much for sharing it very elaborately. It was, yeah, it gave a lot of insights to me, and I have a couple of questions regarding the higher order thinking ability. You pretty much mentioned that critical thinking is something that you expect out of students obviously. The definition of critical thinking is quite broad and could be more modular depending on the context how you adapt it. So what does exactly mean when you say critical abilities? And and you also mentioned about a few questions that you posed to students to reflect on. And how are you actually deciding those questions? And yeah, kind of how it relates to your expectations of what critical thinking is.

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So if you could elaborate a little bit on the definition of critical thinking from your context and the questions how you come about?

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Speaker 2: Yeah. So the critical thinker for me is really not to take literature for granted, and that's in the literature that there are different disciplines, especially resilience as in a very interdisciplinary fields, so that it becomes aware that there is not one truth not say, but that's depending on your context. So depending on the context, you define resilience differently. So it's you have to make it operational that some authors consider certain parts very important. That's coming from an engineering field to define resilience often **as to resist**. From an ecological perspective, you focus much more **absorbing** so that that's all this, yeah, exist next to each other and that they are able to kind of contrast that to really grasp that and if possible, even, you know, select or **come up with their own definition, but that they don't take anything for granted**. And one of the assignments we had, for example, this year was also which I think did a great job also in terms of critical thinking. We asked them to for the resilience assessment topic. We also have to review two scientific articles, and we prepared a complete list of questions to reflect upon? And they really had to think about the quality of those articles and like, what? How good is the introduction actually well done? What about methods? Our results clearly described and for some of them, I think, was an eye opener. That's oh yeah, they are published, but actually they are not so good, good quality, are they? They are not providing a clear definition or they **they don't explain actually how they collected data or are not well explained**. It's so to be. I think it's that's when I think about critical thinking. These are the things that's come up for me. So it's not related really **to your question** about the reflection questions, because for me, the reflection questions are really that you are. **You are ability o reflect and to for me, prior knowledge and connecting what you learned to prior knowledge is very important**. So even in The Bachelor, I always try to make it very explicit in a masters the students come from very different backgrounds, so I am not making that link for them, but I forced them to make the link to think about what did I already know and how does maybe what I learned now connect to that? So that is and that's for me. The critical thinking is more to the academic part. I would say that you are able to deal with literature in a critical way, whereas the reflection questions are really about the reflection part and that you become self-aware and are able to link different chunks of knowledge somehow and to make it relevant or to think about the relevance, you know, the.

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Speaker 1: That's yeah, that probably shows how significant the role of reflection, probably in higher education. Mm hmm. I got a clear understanding a little bit, at least. So when you also luckily, fortunately, yeah described that resilience is not a disciplinary field. It's more of an interdisciplinary field, and people from different backgrounds need to understand the contextual value of such concepts. And so in that case, for example, to say I reflect about resilience. I come from a different background. What are the aspects that you think are generally important spacesuit, especially for an interdisciplinary subject to be reflected on?

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Speaker 2: What are all the aspects to be reflected on? Um, poof. That's a difficult question. Well. I already mentioned like definitions, so what do you include and what don't you include in a certain concept or what? Also would like to what mechanisms is it achieved? But

transcript

also how can it be used in in practice? So how can you really make it useful in practice? Um, so yeah, these are the things that come first to my mind. Let's see. Yeah.

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Speaker 1: Let me go through step by step, and definitely you have the answer. I just have to gradually ask the questions. I just jumped in because of the excitement. Mm hmm. So what I wanted to really touch upon is the concept of interdisciplinarity from moving on, from the thinking skills to the concept of interdisciplinarity. So resilience is obviously one of the interdisciplinary subjects, as you mentioned. What does interdisciplinarity mean for you?

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Speaker 2: Um, yeah, well. I often, for me, interdisciplinarity in itself is really something that we think about in the ivory tower of academia because it's in itself, I'm not very interested in interdisciplinarity. I'm much more interested actually in transdisciplinary and how to make that happen. Think for me, interdisciplinary. The it the need for it arises from societal challenges, and it doesn't make sense to really in your academic corner to think about. So there is always this interaction between scientific disciplines and societal stakeholders, and they are the side that those are the societal challenges come from. And because societal challenges are complex, so the course is called urban resilience, so we typically look at urban areas where there is critical infrastructure, there are vulnerable people, a lot of different things come together. So yeah, those are things that's that's require maybe insights from psychology, from engineering, from whatever. So also that whole literature field is I think it's sometimes almost hard to to see where is the discipline or where are the disciplines because it has become complete mixed. So people with a background in geography are writing about people with a background in civil engineering, people with a background in psychology or any other social science fields are writing about it. It's because it's not just it's it's the the system that needs to become resilience. And that system has so many components. And yeah, it's by definition requires done and interdisciplinary perspectives. And so it's yeah. So for me, you can't see interdisciplinary apart from the societal challenge, let's say it's a societal challenge that drive that you need to look at it from. It's I guess it's a. Civil engineering, by definition, is an interdisciplinary field anyway, because it's in a domain of application. It's not, and it's not like psychology where you you certain theories at some point have been developed to explain, for example, human behavior. It's really we are driven by the challenges that arise in the outside world. And then we look at all of its scientific perspectives. Fit best, actually.

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Speaker 1: It's so if I understand correctly what your suggestions are, what you explain is that challenges are at the core. Societal problems are the code which give rise to transdisciplinary, interdisciplinary approaches for that matter, when you meet in transdisciplinary or interdisciplinary transdisciplinary. What is the kind of approach that you mean by that? So there is societal challenges obviously give rise to such approaches and these approaches. How do you characterize this approach?

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Speaker 2: I think there is a lot of I would say it's a collaboration between or at least a meeting of of ideas that come originally, maybe from different disciplinary fields. And I'm also not because I think disciplines are important so that there are people who dive deep

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deeper from a very specific perspective. But then it's interesting how they are up taken by by people. Um, yeah. Well, I just wrote a paper also about transdisciplinary. See, and I was there. We linked it a lot of knowledge co-production, but but then you get to level of project. So I'm also thinking about it what it means, maybe in education. And I haven't really been. Thinking very deeply about it, so it's so I often when I think about a transdisciplinary T or interdisciplinarity is often related to research. Yes, not so much in relation to education.

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Speaker 1: So in research, how do you actually approach as a researcher, not as a teacher, but as a researcher for you? You said co-production of knowledge and

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Speaker 2: co-production of knowledge. Yeah, and I'm so I think my understanding of transdisciplinary is very much influenced by the work by Daniel Leong et all. And they have this paper where they say, OK, you have societal challenges and you have scientific gaps or gaps in the literature or things that are not known in the literature. And actually, by one, societal challenges and academic stakeholders come together and start discussing problems and then finding solutions together. And eventually that goes back into society and to and to science, let's say. So it's a it's a lot about, you know, people interacting, coming together, different types and sources of knowledge, you know, being, yeah, brought together, OK, integrate it. Whatever. Yeah, and the

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Speaker 1: great that that offers me clarity on the understanding of such things. So what would be the important skill or what are the important skills necessary for transdisciplinary are interdisciplinary approaches, as you mentioned for as an engineer or as a student, what kind of skills are the most necessary skills to be successful?

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Speaker 2: Who? Oh yeah. Um.

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Speaker 1: At one or two?

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Speaker 2: Well, it comes back at least also two to. Yeah, having somehow beat the bigger picture and being self-aware, like, where do you fit in into the bigger picture? It's that. Maybe they also did what you learned is only a very, maybe a very small piece of the puzzle, and it fits in in a bigger in a bigger part. And if you are aware of that also doing research that it's about at some point making choices and choices are not good or bad, but you need to make them otherwise you can't proceed. But you are aware of those kind of things that there is a bigger rules out there. And that's why you do what your research or what you learn is positioned somewhere in the bigger picture. And that is, for me that You are self-aware about that. You are able to reflect on that. And then you are also able to make to understand that another person comes from another corner, let's say, and acknowledge that and understand that then maybe people have indeed not only diverging, but sometimes even competing or contrasting perspectives.

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Speaker 1: Indeed. So the ability to understand other perspectives and other disciplines is also key, if I understand correctly from what you mentioned,

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Speaker 2: at least different perspective. So the disciplines, I'm not stressing a lot with my students because they are not just let's say they're students, but any in their future work. They will come across different perspectives all the time. So it's yeah.

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Speaker 1: Ability to understand different perspectives and apply basically are how to make use of it in a very advantageous way.

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Speaker 2: Yeah, but we are not going that deep actually into in education, I think also. Well, sometimes yeah, there is always this desire that you want students to learn more. So I always it's like because also with this whole course on resilience, there we we got rid of the real application part. So we have some small skill assignments, but it's not like working with real societal stakeholders. For me, the ideal course is where they do all of this, that I'm just telling you, for example, about urban resilience course and at the same time, apply it with societal stakeholders to a real case and that they go through this whole learning cycle of, you know, that they reflect on theory that they. Experience that they experiments, maybe that did. Yeah, so especially that that whole experiential learning that you experience also how your Ideas work out or how things work out, I mean, it's too much for a five week course. Yeah, yeah.

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Speaker 1: I mean, we always have no matter what the EC is, I think we tend to have more in depending on the number of these, I think. Yeah. For the project, we have 9 EC, but still we feel like, OK, I think that a lot of work for nine EC.

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Speaker 2: Yeah, exactly. Yeah, yeah. And maybe so for this course, urban resilience. One of the goals that we have is also to better prepare students, for the master thesis assignments. So that's so that's why, you know, dealing with literature and those kind of things are quite important. And then I'm always like, OK, if you really are interested in this then and your master thesis, you can come to me and we can do the real application.

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Speaker 1: So that's nice. And it was really interesting, obviously. I would have definitely like to be a student in your course.

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Speaker 2: maybe one more thing that I didn't tell you yet, but maybe is also nice to know because it was also one of the education specialists of the university. Also advised me is that we are also making use of concept maps. So we we really in a lost last year, we ask for every topic to prepare a concept map, so to not only write it down, but to also visualize and how different concepts are connected to each other and how different ideas that they learn in the course are connected. And that was a bit too much because students find it very challenging to make these concept maps. So now we ask for one. In the beginning, it's a

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small assignment, but also for one in the end to really visualize. You know, how what are your domain concepts that you take away from the course and to to show these connections? And that was also based on an article and is also helping students to, you know, to to to get the overview. And of course, students learn in different ways. I think for some of them, the the visuals work really well.

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Speaker 1: Yes. I I myself actually created of when actually I did a concept map for my Ph.D. project in the beginning. Oh yeah, huh. I am not a visual learner, but I'm more of a verbal. I like them to read memories more of words. But then I wanted to try that, but it was really helpful. But yeah, I could see how actually visually presenting something could be. Yeah, creating long lasting understanding.

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Speaker 2: Yeah, especially because students read quite a bit and you can get easily lost and you can lose the oversight and the concept map because. OK. I always say it should be comprehensive but concise, so I give them a kind of a yeah range within for a number of concepts they are allowed to include because some of them, they are very they have difficulties in limiting themselves and you can get like big trees with full of concepts. That's not what we want, but we also don't want to like just five or ten boxes somewhere in between. Yeah. And it's yeah, so some because some students are too. And I tend to oversimplify and some tend to overcomplicate, and the concept map helps them to kind of get to a reasonable overview of what they don't

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Speaker 1: think they mean, the assignments they tend to do, sometimes even one of them. So one of the team did 100 pages of a report and just delivered. So I totally understand doing just two pages from a hundred pages. Students need to be guided. Definitely there.

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Speaker 2: So also for the portfolio, I always give like word limits, and the range is quite broad because some need more words and some need less. But that's just to be clear, like this is, you know, around the number of words that I do expect. And that's again, you know, on the one hand, I give them a lot of autonomy, but there are limits. I put a frame around everything like, OK, there is some flexibility, but

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Speaker 1: We did learn that hard. We actually said we wanted to give a lot of autonomy and flexibility. Then we ended up reading 100 page report and evaluating it's oh, it's

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Speaker 2: too much, it's too much. It's too much.

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Speaker 1: But now we are. Yeah, we have learned it. So we have to actually set the limit and see how it goes.

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Speaker 2: Yeah, yeah, yeah, yeah, yeah.

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Speaker 1: So my my most of the questions are kind of over. My next topic is more about challenges for students and teachers regarding the concepts that we discuss, discussed mostly. Yeah. So what kind of challenges do students face when acquiring the higher order thinking abilities, such as reflection skills or critical thinking skills, etc., etc.?

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Speaker 2: Oh um, it's it's so funny. It's so diverse. Like for some of them, it's very natural, and for some of them, it's like very, very difficult. This year I had one student who. He says that while this was I shouldn't have picked this course because this is it's not my thing, you know, I find it really, really difficult and also to reflect for some. This is the essence, you know, it's like, OK, this is, Oh, I wish I had that many more teachers before. Ask this from me because this is what I enjoy, what I like. And they they are very open minded. They all the time tend to already connect to what they learned, for example, to what they read in the news or what they learned before. They are more of these holistic thinkers by themselves, let's say, or they have also a tendency to read a lot of news or two to be told they already make that connection to what they learn during their studies. And yeah, but our future domain working domain will be. And then there is another group who was really, I guess, somehow trained to just learn and pass the assessments. And they are just there to to get a degree. And they are not yet there, but I think so this I am also not asking this. I think to ask this from better students would definitely be too much. But that's also why it's like this is for master students. They should be. They are almost leaving universities. They will soon be applying for jobs. They need to think about what they're master thesis will be about. They should have formed opinions, IDs because otherwise anything they learned is useless, but it's for some of them. And then, of course, there are some. They are just great writers and others are very poor writers. And I'm asking a lot of writing skills because you need to formulate your thinking. You know, it's not just putting some calculations on paper you're past. Of course, it's OK.

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Speaker 1: Yeah, true. True writing is something that, you know, university teachers struggle with the students, especially not since everybody is not up to the standards and you can't be teaching writing at that moment.

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Speaker 2: Yeah. No, indeed. Indeed. So it's. But uh, so. Oh, all the time I've been able to to get students to the level that need to so that they can pass. And I usually give a lot of nine or nine points something for these portfolios because there is like, I don't know, but maybe 20 percent is really delivering super high quality work. And they they complain about the time investment. But then I'm also saying, but you all get very, very high grades, so maybe you overdo it. A bit.

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Speaker 1: That's nice. So that's about students. But as a teacher, what are the challenges you face in developing or achieving your learning objectives apart from the content? More on the skills aspect.

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Speaker 2: Um, well, I'm well. What I find very difficult is the different levels that students have. So you kind of expect a yeah, like even my writing skills and referencing skills. I mean, some of them, they come into the master from another education and another country. Or so do the students who did the best-known civil engineering. Of course they have. They have learned something during a bachelor's, and I'm quite well aware that they have. Basically, I think it's quite well embedded in our educational program and they learn how to write. But then students coming from other backgrounds sometimes. And also we have students from sustainable energy transfer technology or from ATLAS. They are OK, by the way. They are very good. Their reflection assignments other students are so good at us is is you could see it's a skill that can be learned. I think that's, you know, because I have bachelor students from Atlas, but they deliver the best reflection reports. They overdo, sometimes even a bit. And then you can tell that's what I got from them is they they are not. It's not. So some of them, it comes natural and order doesn't come natural. But then I lack the skills to, yeah, how can you learn something somebody this, apart from just giving feedback on what they do, and I'm still learning a lot myself. So that is, I think, one of the things that I don't really know how to teach students to actually acquire this skill or what to give to them. Like, how do you become good at reflecting? I don't know. I can give them feedback when it's not going well and I give them instruction that also got from my from the internet, so I have some handles, but still it's it's not easy. And then and the other thing is the time consuming part of so that's challenging for teachers, because if you really want to do this in a good way, it involves a lot of reading. And also formative assessment is super important. But then, of course, it's it's intense.

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Speaker 1: Yes, I totally understand the struggles of a teacher as well. And so in these situations, what kind of things could help a teacher apart from time?

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Speaker 2: No, I think I've been amazed about how much you sometimes could find on the internet. Like also, I was struggling with how to assess these kind of outcomes. There are great assessment rubrics on how you can assess reflection reports. So I've benefited really a lot from from those kind of insights. Um, there also to support from indeed from education advisors and our faculty, that has been very useful. Um, I've been trying peer review, you know, as a way of reducing my own workload. But. You also have to learn students to do peer review, and again, some are very good at it is all very bad at it, and they are usually not as critical as you are yourself. So it's remains a challenge. So I think anything you ask students, you need to explain them how to do it or you need to learn them. So then various peer review seems to be a way of reducing your own workload. It's not necessarily because I think if you want to take it seriously, you also assessed the peer review. So it's nothing to be assessed. So I gave up on that last year because it's not the case. It's just another thing that I need to assess. It's not a skill that students need to acquire. You can't just say, OK, do peer review, know it's something they maybe need to learn before they can even do it. So, um, and and then there are like the basics, and I maybe I should also work more with refer them more to standards or I do that already. So I have quite a I have also a canvas page, you know? That's yeah, I'm still also learning myself here, let's say, on how to do this and how to,

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uh, we also try to build this formative assessment a bit around, like a competence base. Like how far are you into the competence to to stress that a bit, but then how to get them to the next level? Or yeah,

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Speaker 1: it's definitely a struggle. Yeah. And I also actually kind of use peer reviews and assessments about what I give them is obviously beforehand the rubric upon which they need to.

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Speaker 2: Yeah, but still but still, yeah.

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Speaker 1: But I will not be if they said, as you mentioned, I cannot use that for and because of the quality official assessment. But that didn't help helped the students to get some feedback from their own peers. And they are just quite a bit of bite. But like as you rightly suggested, we can't use that as an official assessment, or a formal input, but our own assessment.

00:43:02

Speaker 2: No, no. And well, if are if your goal is it's it's for them to learn the assessment criteria. I used the level for that purpose, for example, and to see what other groups are doing and to to also to help them to learn, to help them learning to reflect. I mean, it's good well that competence of being reflective of your own work. But then what I do in The Bachelor is what I think is much more useful is that I first work with smaller groups and then I merge two groups and I ask them to make a work plan to in preparing that work plan. They have to reflect on both reports on what is there so far and what do we take further with us and what do we think is less high quality? That's much more effective than peer review because, you know, it's really like, OK, it's really critical you have to do, OK, this group did this so far, and this group did that so far, and they come with some preliminary area development plans. OK, which ideas do we know? Take further. That's the most effective. I think I'm very enthusiastic about that part that one much more enthusiastic because it's also a form of peer review because they look at what the other group did, but they are very serious about it because this is what they have to continue with. And that's the greatest. I'm very enthusiastic about this way of working. And also many, some students mentioned it explicitly, but no one ever complained about it. So that already says enough.

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Speaker 1: that's nice, and that sounds very interesting. I think I've learned a little bit a little bit about also implementing in my own courses.

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Speaker 2: Yeah, well, that's that's one, you know, first work with smaller groups and, um, merging them into a bigger group and then ask them, You know, what are you know? I asked them a kind of a work plan that's based on reflection? Oh, it's amazing what that does.

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Speaker 1: Yeah, I can imagine. Indeed. So, yeah, thank you. Thank you so much for sharing. And I almost done with all of the questions. Know just one question. Sorry. Are you aware of the Term metacognition?

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00:45:05

Speaker 2: Obviously, I've I've heard about it's but I well,

00:45:14

Speaker 1: I just wanted to say I'm an metacognition is related with the reflection, the ability to think about your own thinking processes. So how you think and how you process information and how you behave, basically is the cognition to higher level cognition, which is metacognition, and that is related with obviously reflection. I just wanted to know how what is your understanding related and what how do you are? **How important is that, do you think in higher education setups?**

00:45:45

Speaker 2: Yeah, to be honest, I'm not so sure, because for me, it's also about students are aware, like what is the best way for them to learn, for example. And so it's not a process where I'm involved in, I would say, as a teacher, almost because I've seen that students develop this over time. So it's very clear with master students, I get that feedback like, OK, I work best in this or that way, or this works well for me or not. And I think all of them are at the end of their studies pretty well aware of, you know, what's the best way for them to learn, to learn, let's say. So they they learn to learn over time. Yeah, that's my first association with what you just explained about metacognition. And it's yeah, that's the process. That's as a I'm not a skills teacher. I'm I'm in the end, I didn't tell it. My teaching involves skill, **sometimes because but more academic skills than that, then those skills like learning to learn because I think that's the process they have to go through by themselves somehow.**

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Speaker 1: Yeah, it's a lifelong journey as well.

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Speaker 2: Yeah, yeah. Exactly. Yeah, yeah, yeah.

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Speaker 1: Yeah, I think, yeah, we have come to the end of the interview and yeah, thank you so much for genuinely answering for all the questions that so much interest and passion. And it was actually very a delight for me to listen to such a passionate teacher. And yeah, once again, thank you very much. If you have any questions and comments, please.

00:47:23

Speaker 2: Yeah, sure. Yeah. And also, if you need any further information or you would like to to know a bit more practical on how I do certain things, or then I'm always happy to provide further information or references to literature that I've been using or whatever.

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Speaker 1: So that would be great. Thank you very much for offering. Definitely, when I needed a few things, I will definitely reach out to you and hopefully. OK, see you one day in person.

00:47:48

Speaker 2: Yeah, OK, take care. Good luck with your research. All right.