DSR ACADEMY

03-07-2024 ALEXANDER MAEDCHE – TRANSCRIPT

2 SPEAKERS	Duration
Michael Gau	13m 32s
Alexander Maedche	

START OF TRANSCRIPT

[00:00:01] Michael Gau
Welcome to another interview within the DSR Academy. My name is Michael Gau, and I'm a researcher at the University of Liechtenstein. Today, I have the pleasure of welcoming Prof. Dr. Alexander Maedche from the Karlsruhe Institute of Technology. Alexander is the head of the Information System Research Group, and he is also the head of the Human-Centered System Lab. Moreover, Alexander is an editor for multiple journals in our IS field, such as MIS Quarterly. He also serves regularly as a track chair at DESRIST, the International Conference on Design Science Research in Information Systems and Technology. Welcome, Alexander, and thanks for taking the time to share your valuable knowledge and your insights.

[00:00:54] Alexander Maedche
Yeah, welcome. Thanks for this nice introduction.

[00:00:57] Michael Gau
Thank you. Yes. So I saw on the web page that your lab is focusing on the human-in-the-loop paradigm in order to continuously involve humans in the design process, and therefore, you heavily contribute to the existing design knowledge base. Talking about the design process, I picked, or we selected, one paper you recently published with the title Conceptualization of the Problem Space in Design Science Research. You publish that together with your co-authors, Shirley Gregor, Stefan Morana, and Jasper Feine. So in the paper, you argue that one of the first steps in design science research is to have an appropriate understanding of the problem space, and therefore you propose the solution, or you propose a conceptual model supporting design science researchers or scholars to somehow express and describe the problem space. My first question regarding the paper would be, How did you come up with this idea, and why did you decide to write this paper about this topic?

[00:02:15] Alexander Maedche
Yeah. There are two reasons why I pushed for this paper. First, when supervising students at different levels, degree levels, so to speak, bachelor, master, or PhD, I got the impression that people often struggle to articulate the problem or structure the problem space. I thought it could be helpful to provide a kind of template for them. A second thing that I also observed in review processes is that when you get paper reviews but also when you write reviews, there's often this point: okay, the problem is not well described enough or the problem is not convincing. I thought it might also help authors and reviewers better articulate the problem using the conceptualization I developed together with the co-authors. So that is basically for education and research. I believe such a conceptualization can make sense.

[00:03:24] Michael Gau
Yeah, that's very interesting. I mean, you specifically addressed the design science research community, but do you think that's limited somehow, or would you argue no, you can apply this model in other research areas as well?

[00:03:40] Alexander Maedche
This model has a kind of design flavor because it includes requirements. You wouldn't articulate requirements in behavioral research, but something like goals and stakeholders. That's actually also a huge topic when doing behavioral research, like an interview study or an experimental study. It's a key question, obviously, how you do the sampling, whom you invite, and why you focus on a specific group that may have goals and needs. So I would say parts of the model are generalizable. But the way it is presented currently, it really focuses on design-oriented research.

[00:04:27] Michael Gau
Obviously, one of your core contributions is the model itself. But would you say that there are any additional core ideas you would like to emphasize? Or you would like to highlight?

[00:04:48] Alexander Maedche
The model itself is the contribution of this paper. Mind you, we also came up with some examples and showcases. I think it's actually interesting to review existing work to see how it basically describes the problem and how mature the problem description is. So this model and its showcase that - we only have two showcases. You could do a very systematic review of existing literature against this problem using a conceptual model. But I also think that it's not only the model itself, but also its application and demonstration in two papers. But I think in IS there's often not enough conceptual research, because what I pushed a lot in this paper, or at least I tried my best, is conceptual clarity in terms of what exactly are the key entities in such a problem space description, and how do they relate? So in terms of needs, informed goals, goals are satisfied by requirements. All this is done in cooperation with stakeholders. So this kind of semantic relationship I find very important.

[00:06:07] Michael Gau
Yeah. So you provide a quite abstract view of how to conceptualize the problem space. Can you give 1 or 2 examples, maybe for a little bit less experienced design science researcher, of how to apply your model and how to start?

[00:06:25] Alexander Maedche
Yeah.

[00:06:26] Michael Gau
1 or 2 examples, guidelines, or something like that.

[00:06:28] Alexander Maedche
Yeah, sure, I can. Actually, these showcases that we described in the paper also give a kind of order because whenever you tackle a problem-space exploration phase, the very first thing is to look into the stakeholders. Who are the people that may be confronted with one or more problems? That is why I would always recommend trying to do a stakeholder analysis in terms of identifying the people that are involved in a specific domain or context. Then, from there, derive needs, goals, and requirements. And again, I would say that before jumping into more or less concrete requirements, try to understand the needs of the different stakeholders; try to let them articulate or engage with them to understand their goals. And from there, be more specific. You also do not always need all these things immediately. It could be that you have, let's say, ten stakeholders, and you decide on two, where you then go deep and pick needs and goals, and then you may eventually jump on one remaining stakeholder and go very deep into requirements. It's a kind of incremental process because, in complex domains, you may not be able to just pick and work with every stakeholder and go into details. It takes forever. My recommendation would be to focus. And this model

should also provide you with a kind of checklist where you need to make decisions. One obvious, super important decision is: which stakeholders do we focus on? And yes, it's okay to focus on more than one, but it's, I think, too complex if you have eight stakeholders and try to serve everyone's needs, goals, and requirements. This is not possible, at least not for a given project with a limited amount of time.

[00:08:35] Michael Gau
Yeah, this makes sense. Regarding your design process for the model, what was the hardest part, or what would you say was a tough decision, that you had to face during your design process when you designed your model?

[00:08:53] Alexander Maedche
Uhh.

[00:08:55] Michael Gau
If you remember.

[00:08:58] Alexander Maedche
Exactly. It was quite some time ago, to be honest. But as usual, when coming up with such conceptual models, the most tricky decision is which concept should be included. Because obviously there could be many more concepts you may add to the problem space, but I personally believe you know less is more. And that is why I decided on four concepts at the end of the day. That maybe was the hardest decision to make this kind of decision to reduce the number of concepts to eliminate complexity, or at least reduce complexity.

[00:09:36] Michael Gau
Yeah, I can imagine that. I mean, it's not an old paper, but it's been five years since you wrote this paper. So from your current point of view and your experience, or maybe related to the current technologies we have available, what would you change if you wrote the same paper today? If there are any changes. Or would it be the same paper?

[00:10:08] Alexander Maedche
I think it would be the same. The good thing about such conceptualization papers is that they are independent of technology and time, more or less. So I still think the problem space consists of these elements. No, I'm pretty happy with that. No, it's good for me.

[00:10:35] Michael Gau
Fair enough. So maybe a little bit of a broader question. What is your desire for the design science research field? Do you have any recommendations for other researchers or researchers in general regarding, for example, explaining and describing problem spaces? Would you wish that every researcher applied your model?

[00:11:02] Alexander Maedche
Yeah, for sure. I would wish that every researcher applies my model and cites me. No, just joking. But I personally believe that the design science research field can benefit a lot from clear conceptualizations because designs and research are complex. In order to reduce complexity, it's very important to have a common understanding of the key elements that you need to deal with when doing design science research. And that leads me to the point that the more we agree upon these elements, the better we can execute design science research and also assess the quality. It's also a little bit about standardization. Why are empirical research, quantitative research, and experimental research successful? There's a well-agreed-upon

set of standards for what you need to do if you execute an experiment. With this problem space conceptualization, I also push a little bit towards standardization. I believe this is important. It would be my wish that we get better in terms of agreed-upon standards and tools that support these standards, so that you provide templates, but also maybe software-based tools that people can leverage to execute their research. That doesn't mean that we want to limit creativity. So it's still up to the researcher, but it's really about getting it a little bit more streamlined, comparable, and reusable. Because assume papers report the problem always the same way. It's much easier to reuse knowledge because design knowledge is also produced in the problem space descriptions. And this is a big problem, as we know, to reuse knowledge in design science. So that is why I think all this helps and contributes to making it more mature.

[00:13:05] Michael Gau
Yeah, I can agree. This was basically my last question. I want to thank you again for your valuable time and for giving us a little bit deeper insight into your paper and your thoughts about design science research. Yeah, thanks again for the time.

[00:13:29] Alexander Maedche
Thanks, Michi. It's a pleasure.

END OF TRANSCRIPT