SLW 25: The Pursuit of Learning with Ronald Beekelaar

Sliding Windows audiocast

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Automatic Shownotes

Chapters

Long Summary

In this episode of Sliding Windows, Thorsten Butz speaks with Ronald Beekelaar about his path into computing, beginning with a strong interest in mathematics, a year as an exchange student in the United States, and first contact with an Apple IIe. Ronald explains how he moved from mathematics to computer science, studied at university for many years, taught programming, wrote a book on Pascal, and later started his own training business. The conversation then turns to virtualization and Microsoft technologies. Ronald describes how he shifted his focus from earlier platforms to virtual machine technology, how VMware dominated the field for years, and how Microsoft's virtualization products evolved from Virtual PC and Virtual Server to Hyper-V. He says his long-term work with Microsoft built both technical knowledge and personal relationships, and he comments on Hyper-V's role in Azure and the recent emphasis on improving management tools. A major part of the episode focuses on teaching and learning. Thorsten and Ronald discuss the use of slides versus hands-on practice, the role of imitation and making mistakes, and how learning often happens by doing rather than by listening alone. Ronald reflects on how his own teaching changed over time, how books once functioned as practical reference material, and how online resources changed the learning process. They also discuss cultural differences in education, especially between the Netherlands and the United States. Ronald says he noticed a stronger expectation of a single correct answer in the U.S., while Dutch education felt more open to multiple solutions. The episode then explores AI, with Ronald describing it as a new step beyond predictable autocomplete, and discussing its possible impact on training, exams, administration, and the continued need for apprenticeship and mentorship. The final part of the conversation covers accessibility and machine-readable content. Ronald recounts teaching Microsoft Word to Princess Christina and adapting software for low vision. He also speaks about Microsoft's accessibility focus under Satya Nadella. Thorsten connects this to Markdown, semantic formats, and the needs of both users and AI systems, and Ronald confirms that Markdown is useful in their lab materials because it is easy to render, read, and edit.

Brief Summary

In this episode of Sliding Windows, Thorsten Butz speaks with Ronald Beekelaar about his path from mathematics into computer science, including teaching programming, writing a Pascal book, and later building a training business. They also discuss Ronald's work with virtualization and Microsoft technologies, from VMware's dominance to the development of Virtual PC, Virtual Server, Hyper-V, and its role in Azure. The conversation also focuses on teaching and learning, with discussion of slides versus hands-on practice, learning by imitation, and how books and online resources changed education. Ronald and Thorsten then talk about cultural differences in education, the possible impact of AI on training and exams, and the need for mentorship, accessibility, and machine-readable formats such as Markdown.

Tags

Sliding Windows, Thorsten Butz, Ronald Beekelaar, mathematics, computer science, programming, Pascal, virtualization, Microsoft technologies, Hyper-V, Azure, AI, training, education, mentorship

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Transcript

Thorsten:
[0:34] Goedemiddag, Ronald.

From IT to Teaching

Ronald:
[0:36] Goedemiddag, goedemiddag.

Thorsten:
[0:38] Welcome to another episode of the Sliding Windows. And don't be afraid, I'm not trying to speak Dutch. That would limit the number of listeners, so we try it in English. With me is one of my famous IT experts. I say a friend of mine. You became a friend of mine. We know each other for quite a while. Ronald Bickelang?

Ronald:
[1:05] Yes, correct.

Thorsten:
[1:06] That was correct? Okay, that's fine. For all the people out there, they always call you Ronald.

Ronald:
[1:11] Yes.

Thorsten:
[1:12] You're from the beautiful city of Utrecht.

Ronald:
[1:15] In the Netherlands, yes, indeed, indeed.

Thorsten:
[1:17] Yes. We know each other for quite a while because we're both working in the learning space, let me say it like that.

Ronald:
[1:26] Yes.

Thorsten:
[1:28] And I always thought in that podcast with asking people, So where do you come from? Did you properly learn it? Have you been to university or all of a sudden you were an IT guy? Would you like to tell us your story where you come from? Was your personal history with computing?

Ronald:
[1:49] Yes, well, I was not all of a sudden an IT guy. I studied for it. And actually, if I start all the way at the beginning, how I came into IT or in computers, how you want to say it, is that I didn't start with computers initially, but I started liking mathematics a lot. Even so much that I signed up for doing mathematics at, want to go to university and do study mathematics. But then what happened, when I was 19, 18, I went to the United States for one year and then as an exchange student for one year. And during that year, the family that I was staying with in Kentucky, in the United States, they had an Apple IIe. At that time, it just came out at 16.

Ronald:
[2:46] Kilobytes of data, of memory in there, 16 kilobytes. And funny enough, my telephone now has enough memory to give every person in Kentucky 16 kilobytes of memory.

Choosing Computers

Ronald:
[3:02] But that is on my phone. But at that time, there was a lot. But I like computers a lot. So I came back to the Netherlands after that year, went to university, and after three months of studying mathematics, wiskunde in Dutch, I thought that computers were much more interesting. And I switched my major to computers. At the time, by the way.

Ronald:
[3:29] Computer science was just starting as a study. So usually it was even like math teachers that or math professors that did that. And then I studied at the university, did a lot of programming. And I actually wrote a book about how to... Teach programming and i taught, introduction to programming at the university a lot so, i actually studied for a long time for 10 years i was at the university at that time you could still do that and i justified all that because at the same time i was i wrote that book on pascal programming language, i taught programming at the university I went to Princeton University in New Jersey for one year, very interesting, that was at the cognitive science department, where they were trying to find out if natural language acquisition, how babies learn

language, if there's any correlation with how adults might want to learn or pick up computer languages. And so I programmed at the cognitive science department in Princeton, very interesting. And then finally I graduated from the university and immediately started my own company related to training.

Thorsten:
[4:56] What was the name back then?

Ronald:
[4:57] Of the company? I think it started, my last name is Bekelaar, of course. And I started, Bekelaar in Dutch, I should say. And I think it started as Bakelite Consultancy, just by my own name. And then very soon after, I discovered something that I've been doing for the last 30 years. And that is everything related to virtual machine technology. So then I changed the company name to FurSoft, VR as in virtualization. And then I mainly focused on everything related to virtual machines. And I've been doing that for all that time. So sometimes I joke that I never worked for anybody because I've always been my own boss doing that. And I would say that.

Ronald:
[5:55] I did office training and after that, operating systems and networking. And that's actually very interesting because the concepts there have not changed, let's say, right? If you know TCPIP, the networking, it's still useful. And I still remember at the university, you mentioned teaching or training, or how do you want to say it in English, teaching and training? And at the university I participated in a program to get some kind of teaching degree so I could teach at the university, and I found it so interesting that I immediately combined that so that's why, I continued in training. So that's basically how I started in the training and also in the IT, what I did at university.

Thorsten:
[6:56] You're a celebrity, especially in the... I don't think that you're limited to Microsoft as the only thing that you're focusing on, but in the Microsoft space, you're a real celebrity. You're a long-time expert in everything Hyper-V, stuff like that. Did you ever think about, let's say, changing the vendor? I think if you're focusing on Hyper-V, you're also focused on Sensor, for example. Was it tempting to go another path?

Ronald:
[7:29] Interesting question. Well, in fact, I started with Apple in Kentucky. So I started with that. And then Apple 2e. And then.

Ronald:
[7:43] With virtualization, in the beginning, VMware was the king. And I actually, at Microsoft conferences, I have delivered sessions on VMware. But then Microsoft bought a company called Connectix, which provides virtualization software. In the beginning it was called Virtual PC, then another product was Virtual Server, and then it became Windows Server virtualization for a second, and then it became Hyper-V, and that's the main virtualization product, of course. But over time, I've built quite deep relationships with Microsoft. I would even say at two levels. One level is just the number of people that you know within Microsoft, but also just understanding the culture and the way the Microsoft people, work and find important and find, how they set priorities. So I've

thought about it many times, but it's really, difficult to build the same level of experience, with another vendor company like AWS or Google or another technology company or Adobe or Oracle. There are several candidates. So the main focus has been Microsoft.

Thorsten:
[9:10] The interesting thing is that I don't want to focus too much on virtualization today but since we now touched it might be interesting to talk about it a little bit longer if you think about VMware and all that bad things happening now with Broadcom if you think about Hyper-V that more or less It seems that it doesn't evolve because today everything is Azure. And I'm quite sure that Hyper-V is a basic component of everything that is hosted in Azure. But there is no such thing as a good utility for enterprise management. I think System Center Virtual Machine Manager is laughable, right? Is it just me? So in retrospect, I think staying with Microsoft, focusing on Microsoft, working with Hyper-V was a good choice. But if you talk to on-prem customers, do you have an opinion of what did happen to Hyper-V? What is the future of Hyper-V? For people that, for example, that are looking for something to move on, maybe they have VMware today and

Hyper-V's Microsoft Path

Thorsten:
[10:25] maybe they're looking for an alternate solution.

Ronald:
[10:28] Yes, yes. Well, that's a very interesting question. And I've been an MVP in this topic for a long time as well. And during that period, I also saw the focus of Microsoft or the attitude towards FortressAge change as well. In the beginning, it was definitely a complete story where they wanted to catch up to, like VMware was the king, right? To catch up to VMware. And then after that, that drive to compete with VMware went away so then it was just a product that that was for for customers, and then the impression came that nothing new happened with with Hyper-V, and in reality what happened is that Azure and the whole hyperscale of of Azure, is all built on top of Hyper-V. And a few years back, 10 years, 12 years, I don't know when, Microsoft actually made a very interesting decision, I think, related to virtualization, because initially they thought they would have two versions. They would have a version.

Ronald:
[11:41] Used by Azure, and they would have a version used for the public. But then they decided that that would be bad, because then you have to maintain too and then they made a really nice decision to have the exact same version that's out in the public also have use in the Azure data center and that's actually good, for the public I would almost say right because otherwise all their energy would go to Azure make that version good but now it is actually literally the same version, and lots of new functionality goes into to Hyper-V the product, be it technical things like a way to divide one graphical processing unit into multiple virtual machines or all kinds of technical things like that. But what they never focused on is the management story. And the reason is that management in Azure is done with their own internal tools, right? They don't need that. The scale is so huge that they have a solution for that, let's say. They built themselves.

Ronald:
[12:51] Almost like you timed this question perfectly because three or four weeks ago, they came out with Vmode. I forgot what the full name is. Windows, the abbreviation is WAC. Windows Administration Console Vmode and V stands for virtualization. And two days ago, Beta 2 of Vmode came out. And that is actually Microsoft's answer to having a much better management story so that VMware, customers want to move away from VMware because the licensing becomes too high. The costs are too high now that Broadcom has all the new rules about the licensing prices that they actually can move to Hyper-V. So Microsoft actively is improving Hyper-V and, improving some of the places where they didn't put a lot of attention in over the years. Management stories is one of them that needs to improve, definitely.

Thorsten:
[14:03] So it might be worth also checking out what's coming up next if you're in that business. I always see that everything that Microsoft focuses on is Azure, Azure, Azure, Azure. And if it's not Azure, it's Microsoft 365, it's cloud service. If you ask for something on-prem, then the return is what is on-prem. So there are some customers who focus on on-prem and maybe there is some products in the pipeline that might be worth checking it out. But there are also other vendors. So I think you have to open your mind and find the best solution. I think Proxmox is quite popular these days.

Ronald:
[14:46] Yes, yes. And there's several others as well. But I don't know all of them that well. But there are definitely others that try to pick up, let's say, all those VMware customers that now leave the VMware solution. So for sure, IPv has to actually do their best to be in that space.

Thorsten:
[15:10] I would like to focus in this talk about teaching and learning. And I would like to introduce you with the backstory of it. When I started the Slowcast, a long time ago, not many episodes ago, but many years ago, actually, one of the first guests that I wanted to invite were you. Oh, really? But we couldn't really find the time because we don't live so far from each other. Utrecht and the Rhein-Ruhr area, it's two hours by car, not the problem. And of course, we can also do it remote. But I always like to have the people in the room. It's something different.

Learning Across Decades

Ronald:
[15:53] Just for easy conversation.

Thorsten:
[15:54] Yeah, but actually, we regularly meet at conferences, just like now we're in Sarajevo at the MCT Summit. And what seems a bit funny is that I think I'm quite a long time in the business for me teaching more than 25 years, stuff like that we talk about. But you're even longer in the program. You're an MCT, for example, for, say, 32?

Ronald:
[16:22] Yes, in actually September 1995, I became an MCT, which is now, what, 31, 32, 31 years ago? So that was actually Windows 95, the training at the time. So that's why I know so well it's September 1995. So yeah, that's a long time ago. And actually we are at a trainer conference now, so that's suitable. Yeah.

Thorsten:
[16:47] And now we finally, after all these years, we find the time to record one of our many conversations that we had. But maybe, I think this is now the perfect point in time, to talk about teaching and learning but one last thing it's not impolite to ask male human beings about how old are you when you said you have been to the university that was the 1990s i assume but you started in the late 1980s

Ronald:
[17:18] Yes i went to university from 83 till 93 10 years.

Thorsten:
[17:24] Yeah so Oh, you're a little bit older than I am.

Ronald:
[17:26] I'm 61 now.

Thorsten:
[17:27] Yeah, so very experienced. That doesn't mean anything. But in your case, from my point of view, it means a lot. Because it's always funny to think about how things evolve. And if you really want to learn something about virtualization, then it's definitely interesting to see what did we achieve in what moment of time? Why did things happen just like this? But again, I would like to point you to everything that is related to learning. And my starting point is...

Teaching and Learning

Thorsten:
[18:04] The funny thing, I think it's pretty funny, it's amazing, the Dutch people, of course, have a word for training and a word for learning and a word for teaching. But in Dutch, it is learn, it is the same word for teaching and learning. So my first question is, do you think that this has a deeper meaning? Because I could think about something like, in the Netherlands, the student and teacher is more or less the same. We can flip it around because actually from the language perspective, teaching and learning is the same. What's your opinion about that?

Ronald:
[18:47] Well, I don't know if you can really, sorry, if you can really assign more symbolism to it, that it's the same word. Same as they sometimes say about

americans that there's not a single word for, be quiet right for americans in in in our language in your language zwijgen in dutch for example is a single word for be quiet but but it that in the united states you need two words for it and but it it doesn't make sense to say oh you see that, that's how they are they don't even have a word for being quiet, and so so it's it's interesting that it is the same word it's leeren like you say so you would say ik leer something I'm in the role of student and ik leer hen it's, that's in the role of trainer then then both times you use use leeren and it, As a trainer, you do both of them, actually, right?

Thorsten:
[19:55] That's the interesting thing, right? We all know that in our area of expertise, where constantly things change. You can't ask anyone around here, and anyone will tell you, they will tell you, I'm constantly learning on the way to the training, in the evening, at the hotel.

Ronald:
[20:14] Yes.

Thorsten:
[20:15] All of a sudden, things change, and you never know enough. but you want to try to answer all the questions. So it's a lifelong learning while you're teaching. That's interesting. In the IT, we don't think too much, that's my opinion, about the way we teach.

Slides versus Hands-On

Thorsten:
[20:36] And I want to talk to you, not about the content, about the way we teach. Let's start with the prejudice. Prejudices say that we only show PowerPoint slides with lots of text. Is that something that we're doing wrong? What's your approach about when you think back all the years in the Microsoft business, how the Microsoft learning evolved, how the students changed, how the trainers changed?

Ronald:
[21:03] Well, yeah, and I think it goes up and down in waves, or how you want to say it. And it probably also is different for how often you teach a particular topic. I find, for example, if it's a topic that you're teaching a lot, or often, I mean, that you use the materials less and less. Yeah. And I think that's a function of how well you actually know the subject. If by teaching it often, you know the subject really well, and then you just know that you don't need the material so much. And with new topics, you probably rely more on, well, not necessarily the slides, but even more the materials as well. So I think it has a lot to do with that. If things are changing a lot, then you're also not that far ahead of, let's say, having studied that particular topic, right? How often has it been the case that maybe you do a multi-day training and during the day somebody asks a question and you give an answer, you think it's correct or you say, oh, I don't know, I'll look into it tonight. But then literally you're only 10 hours ahead of the student then.

Ronald:
[22:24] But the topics that you know really well, that's very different. Then you don't use the PowerPoints and then you do the training really, really differently.

Thorsten:
[22:34] Yeah, many people would support this,

Ronald:
[22:37] But I think.

Thorsten:
[22:39] There's a little bit more to it. Think about, you mentioned that you wrote a book about Pascal.

Ronald:
[22:42] Yes.

Thorsten:
[22:44] Can you think about, forget classroom trainings, can you think of a student that only reads the book and learns programming in Pascal?

Ronald:
[22:54] No.

Thorsten:
[22:55] I can't think of someone who does it like that.

Ronald:
[23:00] Correct, but this is without Google, right? This is the time when you couldn't, look up something online.

Thorsten:
[23:09] For the younger people, we didn't have Google in the 1990s.

Ronald:
[23:14] Right, so books played a different role than they would now. So when you were programming, that book would still be next to you on the table because you used it to look it up. So it would have multiple functions actually, not something you read from page one till the last page, but also look as looking it up. So in that way, you would actually learn from it because you would use it as Google. I wouldn't say that, but you would look up how things were in the book. And I actually liked it a lot thinking about how I would go about doing that. And one of the things I did in that book was just writing many, many example exercises that students had to go to. At the time, the Pascal version was called Turbo Pascal. It was created by Anders Helsberg from Borland in Denmark.

Thorsten:
[24:18] Very famous Microsoft employee until today.

Ronald:
[24:21] Well, at the time he was in Borland in Denmark, of course. and then later he joined Microsoft and did really good work there. He created, well, for example, TypeScript. He did it all. He's very much into, after TypeScript, he went into optimizing the C compiler, so hardcore, let's say, computer stuff. Programming stuff, I should say. And I had a nice opportunity to, that's actually nice to tell you, I think it was seven years ago, just before COVID, There was a conference in Seattle, and he was presenting as well as a Microsoft person. And I told him that I had written a book on Turbo Pascal, and Turbo Pascal was his first baby. So he was really, really fond of that. And he signed the book years later, 30 years after it was written, he signed the book.

Ronald:
[25:13] But you can study, I think you can learn from a book, but nowadays that will be different. Nowadays, a programming language would not be done from paper. You would learn it from doing it, and you would see examples, and you would play with the examples and change the examples. So that's now very different because you have in such a different way access to materials. And that changed from, let's say, not having internet and having books for your source. That actually, a similar step from books to internet might be the next step if you go from using the internet to using AI, right? That if we have this conversation in 15 years from now, it might be similar, that you say, hey, how was that without AI? And at that time, in 15 years from now, I assume that everything is done by AI. So it's changing. At the time, I think, using a book to learn a computer language was doable. That's how it went.

Thorsten:
[26:21] What I'm focusing on is not only the book, but you don't read a computer science book or a programming language book from page one to page thousand. You read one page or one example, and then you type it in and try it on your own. And back in those days, you really have to type it in, letter by letter, word by word, example by example. So what happened?

Imitation Builds Skill

Thorsten:
[26:47] I think one of the most important things that we have to learn as teachers as human beings is human beings learn primarily by imitating, doing something that someone else already does,

Ronald:
[27:04] The parents in the first place.

Thorsten:
[27:06] And if you think about this, a pretty simple example. Think about learning how to use a bike, how to cycle, feet and nail arms. Very good example.

Actually, you can't teach someone how to cycle. All you do with your children is you do it and they imitate what you do. And you try to catch them when they fall. But you will never learn to use a bike without falling on the floor, getting up and trying it again. So doing it on your own and imitating something, that is the core of how people learn. And that also means we imitate the good and the bad things. Anyone that has children knows that. Anyone who ever taught a class is that you should behave properly because they will imitate you no matter what comes. So imitation, I think, is very, very important. And back in those days, we imitated what was written down in a piece of paper, and now we imitate what's on Google, what's on YouTube, what's on Bing. That's on somewhere.

Thorsten:
[28:17] I think about having all these slides that we are so used to. I personally don't like PowerPoint tags. I use them primarily for showing some pictures because sometimes you need PowerPoint slides. For example, licensing is perfect for PowerPoint slides. You can't practice licensing, right? You could run into trouble if you simply do it by error, right? Because you don't really get that you're doing it wrong. But if you do something proper like learning Hyper-V or learning programming, you have to do it on your own. So the English term for that is hands-on laps, hands-on practice. Sometimes, I don't know if this is a prejudice, but sometimes when I listen to U.S. people, I get the idea that hands-on lap is something additional. But from my point of view it should be the core of learning is there a cultural difference you saw that in your time in the u.s

Ronald:
[29:22] Oh that's interesting that you say it like that i'm just trying to go back to what you said see if i can ring that in what what you said about licensing why that would be different, and and it's almost like if you teach licensing, that's just information that's just there's no structure there there's not not like an uh you cannot say i understand it now because there's nothing to understand right it's just knowing the rules or knowing knowing somebody made it up and and they could do differently the next well they don't do differently the next day but it could have been differently, so so that's that's less about understanding it than just knowing all those those facts, and and of course then like you said that It could be on slides and, it also doesn't make any sense to have on a topic like licensing have hands on, because there's nothing to try or something like that. And with all those other topics.

Ronald:
[30:23] Having hands-on this basically means that you have more ways of seeing the same structures, I think. Programming would be a good example where you can vary a little bit and then see what the outcome of that is and understand those mechanisms. And I would even say that you said just you learn by.

Ronald:
[30:51] By typing the examples or repeating. Nobody said repeating the examples. No, copying or duplicating. I forgot what word you used. Imitating. Imitating, yeah, yeah, yeah, exactly. But I could also say that another aspect of that is.

Ronald:
[31:06] If you make a mistake and then you're almost forced to think as a student at another level, right, to see, hey, why does it not work? And then you recognize those structures.

Ronald:
[31:23] And I think that's part of it as well that why hands-on is such an interesting aspect or such an important aspect, because if I'm only teaching by talking about it, then there's no, that whole mechanism of making a mistake and learning from your mistake is not there because I'm not making a mistake. If I talk there, it's just listening to it, right? It's one way. And with hands-on, I think that's the equivalent of making a mistake and learning from that mistake. And back to your bicycle example, that's also, you learn that by making a mistake. A mistake with bicycling would be falling and saying, oh, that didn't work, right? So next time you try to fall, fall less. I think that's why hands-on is such a good way to learn something. And whether it's trying to learn, let's say, the Azure portal or how to do that, trying to learn how Intune works, management aspects, or trying to understand how a programming language works. For all that, you need hands-on. Although interesting, if I can say one more thing about this.

Cultural Learning Styles

Ronald:
[32:41] At the university, when I was learning languages, the professors at that time, now we're talking a long time ago, they were a big fan of not using hands-on. Because at that time, not because it was expensive, because the computers were not available, but at that time, they thought that the computer.

Ronald:
[33:05] Would hinder your learning because you would, not think about it deeply enough compared to writing out your programming code on paper and then without the computer and then go to the computer. And a few weeks ago, I was in a session with Mark Rosinovich, developer, no, not a developer.

Ronald:
[33:32] The technical person, technical fellow, I think it's called, in Microsoft, he's the CTO of Azure. And he was saying, and he was warning about an effect of AI. And the effect of AI was that what they say to children, if they only want to use a calculator and not learn to numbers by heart, like if they don't know seven times eight because they only do it on a calculator. He was saying the same thing about a warning, about the same thing might happen with ai that, that that people rely too much on it and think oh you know what ai is gonna do this and and that might be the same that that you're not, you don't have some mechanism or you don't have a path where where you actually making the mistake and then learning from from that mistake so hands-on is i think a good way to, to play with a topic where you can make mistakes and that's probably a good, that sticks really to you if you make a mistake and then see how you can correct that.

Thorsten:
[34:44] I have to go back to a single aspect that you didn't answer. Do you see there is a cultural difference how people behave? For example, in your time, university in the United States or Netherlands, it mustn't be good or bad, but do they teach differently? Do they learn differently? Of course they do, but is there any significance?

Ronald:
[35:10] Yeah, I think so. I think so. And, what I think, and I noticed that I went twice to schooling in the United States. I went to a high school level, which is 18, 19. And I went to Princeton, which was five, six years later. So I was 25 at that time. But that's college or university level. And compared to Dutch schooling at that time, at that age, I... It felt like in the United States, and I'm thinking out loud now, I didn't prepare for this question. In the United States, it was much more that there was a single correct solution. So with many of those things, if you came to the same single correct solution, that was apparently the answer. And that was not something that I recognized so much from the Dutch schooling. So let's see if I can translate that back to what you say, if there's a cultural difference or back to how it is with hands-on learning.

Ronald:
[36:18] Then I think the fact that you allow multiple solutions, like I would say in the Netherlands, it was much more open to having multiple correct answers to the question. That probably is a difference because that allows you to think about it and not just guess what the correct solution is. I think, like I said, I'm just thinking out loud here to see if I can recognize something that was striking. And.

Ronald:
[36:56] The fact that a single correct answer was actually what they were looking for, I think that that is something that is different. I'm not sure if any of that is recognizable for the German system. Another example, talk about training and teaching. I remember at my Dutch university, it was Twente University, near the German city of Heidelberg, just on the other side of the border in the Netherlands. I remember that many times the professor I had at that time, and I found it frustrating at that time, didn't want to say what he thought.

Ronald:
[37:32] The answer was and his reasoning was that he didn't want to, poison his words, but then in Dutch. He didn't want to poison our thoughts because then we would automatically be biased towards giving the answer that he believes is the correct answer. He wanted the students to discover what it was and you're way too much influenced, if you hear what you think the correct answer is. So I think those might be cultural differences. I would not be surprised if the US has that less, let's say, right? Because they're going for that one correct answer. And that's interesting. Let me think about it a little bit more if that ties into hands-on as well.

Thorsten:
[38:28] I'll give you an example to make it a little bit easier. If you've ever been to a computer science course whatsoever, let's say a Windows Server course or a Linux administration course, it will likely happen that you run out of time. And it might happen that the instructor says, okay, let's skip the lab. I never saw someone say, let's skip the slide.

Ronald:
[38:51] Yeah. You know what I mean?

Thorsten:
[38:53] From my point of view, the lab is way more important than the slide.

Ronald:
[38:57] Yes, yes. Okay, let's continue along that line. Because would the lab, if you were to skip the slides, would the labs then, the hands-on exercise that you do, would they still have as much value or do the hands-on labs... And reiterate or demonstrate to you what was just explained. So you probably need both components there, right? Yeah, of course. So the framework is given by, maybe not by the slides, but at least by the trainer setting the examples or explaining, the scaffolding or the framework, and then you do the hands-on. Let's say, well, you're big in PowerShell, obviously, but the same applies to, let's say, Windows Server management. You could say that that's something you can solve in different ways, right? You could use a script, you can use command lines, you could use a graphical interface, and they all would lead to the same end result. I think there's some parallels there as well, to allow multiple correct answers.

Thorsten:
[40:17] Yeah, it might be a culture of difference. Because if you think about it, we had so many philosophers in the Germanic world, and philosophy is all about raising questions. It's not primarily about giving answers. Providing answers is maybe more a little bit about religion. I don't know. So there might be cultural differences. For example, if you raise some in some area of the world where you do not have a single God, but you have a complete different philosophy and simply a view on life, that might influence everything that you do. And if you're coming from a very strict religious family in the Netherlands,

AI Changes Everything

Thorsten:
[40:59] that might also influence what you're doing in this approach. But before we go too far, You just touched the area that I was focusing on when I said this might be the perfect point in time because, of course, we have to talk about human intelligence and not human intelligence, also called AI. Let me start it by that. If we go back to the very early beginnings where you started from, then you might have a good idea of how a processing unit works, a physical CPU core.

Ronald:
[41:40] Yes.

Thorsten:
[41:41] Because back in those days, in the early 1980s, maybe you had a chance to understand how that works. And if you're learning assembler code, then it's already a sort of abstraction. If you're learning C, it's an abstraction of an abstraction layer, and it goes on and on and on. And my point of view is that if you show someone what modern editors are capable of in terms of intelligence, autocompletion, not talking about AI, the old guys would say, hey, that is cheating. Anything beyond C is cheating, you know. And if I go one step ahead and see now how artificial intelligence influences my work as a developer or

scripter, it is like auto-completion and IntelliSense with superpowers, and of course it changes a lot. What's your approach on how... Programming languages evolve in the age that we're just in this we're just in the starting area of artificial intelligence and the second question after that will be yeah how is that reflected in learning but let's start with the first one yes

Ronald:
[43:02] Yes well well actually when i when i was studying computer science artificial intelligence was already a term that that was used right it's The term itself is really old, many decades, artificial intelligence. And at the time, I should probably look it up in the books because I still have them. At the time, artificial intelligence was defined as, the capabilities of the computer in 10 years from now. They always define it as some relative from now. And that 10 years, it continues to be pushed forward 10 years. But it was kind of nice because that still applies today. That it's almost a description of not similar to intelligence, sorry, intelligence sense, what you used, or autocomplete, where people have a pretty good understanding how that works. And it's deterministic. It's always the same answer. But by saying it's the technology that will be available in 10 years from now, or what is available now, there's something fundamentally different.

Ronald:
[44:14] That it is no longer that you can reason what is the outcome of that. And I think that's a structural different type of service that computers can offer you. You make the nice ladder steps up, right? by doing, well, nobody does it with bits, but let's say assembler and then C and then maybe Pascal and some abstractions and then editors helping it, the ID helping you that. But it's still all, understandable you can still understand all the steps you can you can understand how intelligent sense works for example right you think oh it knows all the 80 different, ways that that this word can end let me show you those 80 in a list and then you if you type another letter oh now there's only four options so you can actually understand how that works, and and i think the the step that is so fascinating now that, and that's my definition of artificial intelligence, it's actually one step beyond that they came up with an algorithm, LLMs.

Ronald:
[45:27] Where they don't know anymore why it is so successful, right? It's surprisingly successful. And that, I think, opens up so many possibilities of providing the computer providing services. And that's gonna touch on teaching definitely, definitely. And not that I know how that will be, but that's just the nature of AI. It must be that all those aspects are touched by AI. And you can almost, You can almost define them yourself. Let's say.

Ronald:
[46:17] All the things that are currently not happening because they would take too much effort, they can be done with AI. So sketch the scenario. You have a group with 10 students, right? And you have one trainer. Well, I already said one trainer, 10 students. So the trainer has to split its attention in 10 ways. Okay, for sure, AI is going to help with that. AI is going to make sure that all those students get a lot of attention and get the attention they need and get the help that they need or get the, learning paths offered to them that they need.

Exams in the Background

Ronald:
[46:57] One thing that I like, if I can think along this line a little bit.

Ronald:
[47:02] A few months ago, a few weeks ago, I was in Seattle and talking to Liberty Munson, I think, her name. She's the psychometrician for all the Microsoft exams. Psychometrician is the person that does all the statistics for the exams. So you can determine a lot from the statistics, of course. And she mentioned that a very interesting development that is now happening, is that AI is helping with exams. In what way that you no longer have to sit and carve out time for an exam, but that AI is just in the background while you're doing your work. So let's imagine you do something in the Azure portal. You're working in the Azure portal for two hours because you're just doing your normal work. AI is paying attention and AI determines that the way you use your Azure portal.

Ronald:
[48:03] Is done in such a way that, yes, you apparently know the product. So you're not even doing an exam anymore, but it just knows the way you use it that you are proficient enough in the product. And you can understand the same in Word or Excel or PowerPoint. And that's almost similar to how a human would judge if somebody knows the product, right? You just watch them do it. And they don't have a name for it yet but I think sometimes they call it smart assessment or something like that but this is really recent.

Ronald:
[48:41] And you can almost make those examples up yourself because AI can do all those things and, it's going to touch all those areas so helping students, the way exams are run, so does it help the trainer? Um yeah for sure i think i would.

Thorsten:
[49:03] I would argue now that you tell this that this is the wrong approach uh just because which is just a um just a theory because we observe administrators doing the things they also could do five or six years ago so they're doing it the old way the classic I think the better way would be, let's think about the administrator, how can you change the work we do? And with the help of AI, for example, maybe the Azure portal is not the Azure portal anymore a year ahead, because you simply have a small little prompt. And by natural language, by human language, you just type in create a user. That's the name. You don't need to know specific commands anymore because you have an interpreter, right? You can just use your natural language. And in this case, it wouldn't make any sense to test people of their capability of using the old Azure portal, right?

Ronald:
[50:05] Good point, good point. And I would probably blame the simplicity of the example I was trying to give. Yeah, okay. For the mechanism that you're not consciously doing an exam, because that was the main point, actually. But you're doing your normal work, let's say. And after two hours, AI says, hey, by the way, you just passed because you're doing it so well, your work, that you're good for another year. Let's make it more general and not per se.

Thorsten:
[50:35] Big bird is watching you.

Ronald:
[50:36] Well, yeah, exactly. Sure, that's associated with the negative aspects of it, but that's effectively what happens. Although, if we can go a little bit deeper, because I had a really interesting conversation. Like I was in Redmond with Microsoft a few weeks ago, like I said, and Mark Krasinovic, I mentioned him already. He did an interesting session on, what the effect of AI will be on developers.

Ronald:
[51:17] How developers would develop, no pun intended, how they would evolve, that's a better word. And what he said that he believes is happening, and he wrote a paper about it as well, but it's interesting to think about it, how to solve that, that if AI is taking over all those tasks, and you mentioned as well in management, taking over tasks.

Ronald:
[51:42] Then humans would no longer gain any experience with doing those tasks, right? Or what we discussed earlier, they would no longer have the joy of failing in the test, understanding what they did wrong, task, understanding what they did wrong and then learning from that, right? If AI takes over from that. So what he sees happening, that he's a senior developer now.

Mentoring Future Experts

Ronald:
[52:13] That's how he describes himself. And many are senior developer. Why is he a senior developer? Because he went all the way from, many years ago, junior developer, learn, learn, learn, learn, learn, learn, learn. Now he's a senior developer. But if that path is cut off now, and the senior developers will retire in a few years, and there's no new batch of senior developers coming up. So he was a big fan of not letting AI block that. And I think he calls it apprentices or mentorship. He wants to make sure that...

Ronald:
[52:56] And he has started a project as well to make sure that they're still, intentionally teaching and the skill, of what AI could take over, but then nobody knows anything about the architecture.

Thorsten:
[53:15] There are lots of examples about this outside of computer science. For example, one of my favorite examples is, think about cycling using a bike. What does it change if you use an e-bike? An e-bike is perfectly fine for all of those who are not so in a good condition to cycle for 100 kilometers. But the skill of mastering the bike to not run into an accident where you fall on the street the skill is not even the same I think it's a little bit more complicated if you think about all the old people we have that phenomenon that's very bad story people who never used the bike for 10, 20, 30 years, then they retire, they get an e-bike, fancy one, and all of a sudden they have

Thorsten:
[54:13] Real bad injuries they have accidents because they lost their capability of cycling and the acceleration that is possible is dangerous is dangerous enough to run it into accident so lesson learned is if you want to use an e-bike learn cycling first yes that's the first lesson Second example, which I like a lot, is think about a conductor, a musician. What's your expectation if you go to a theater and see an orchestra whatsoever, a musical whatsoever? I would argue that in many cases, the best musician in the theater, in the opera house, is the conductor. Despite the fact that they do not even play an instrument in that evening, they're just fiddling around with their hands. So what does this learn? If you use someone like Mark Rusinovic as a celebrity, a superstar, and giving him artificial intelligence is giving him superpower, just like a cyclist who won the Tour de France, Pogacar, he on a knee bike, even faster.

Thorsten:
[55:32] But that doesn't solve the problem with the new guys in the orchestra, so they still need to learn an instrument. And you can prove that because think of all that electronic music, it's super easy to create songs today without playing an instrument. The computer can do that fine. But nobody of us, no one wants to listen to this because I would call it the spirit.

Thorsten:
[56:01] Just in thinking about a good liquor, a good whiskey, a beer, a bread, where we have that little material that make all the difference and we have that kind of spirit that is our talent, our musical talent, and that makes all the difference. So artificial intelligence with someone who knows the job is a great tool, but someone without knowledge a fool with a tool is still a fool right

Ronald:
[56:31] Well and and some of the things back to learning some of the things that that, are currently taught to to people um are probably not needed in the future anymore right so we music no that's not a good example because we want, well we want music we want but but also at another level we want people to still making music, right? We don't want a world where nobody plays an instrument anymore. Somehow it feels better if there are still people that play music. But if we talk about computer training, then some of the tasks are no longer needed. Another task that I think, if you look 120 years ago.

Ronald:
[57:13] Lots of horses in the street. Then many people could ride horses. Then the cars took over and the horses had to go. If you now want to ride your horse, you don't do it on the street. You're not even allowed to do it on the street. You have to go to some special place. I think the same will happen with learning to drive a car. At very soon, let's say 15 years, one, five, it's no longer needed to learn to drive a car. Why would you? And if you still want to drive a car, if you still want to ride a horse, sure, you can do it. Weirdo, you go to some special place where the cars still drive manually, But on the roads, it's probably just all self-driving cars and nobody needs that anymore. And that's probably, we're probably fine with that, right? If people don't no longer need to drive a car, it's fine. Yeah.

What Skills Still Matter

Thorsten:
[58:13] I get a lot of experience with apprentices. And what I recently found out is that definitely the economy changes because you have a, without being too negative about it, you have some apprentices who think that putting text questions into Chechipiti, that's the job. No, that's not the job. Because if that would be the job, you would earn less than the bus driver. And no offense to the bus drivers. I'm glad we have bus drivers. But what I'm really convinced of is that maybe we need a few less people than today for some tasks. But I'm absolutely convinced that the computer experts of the future must be more talented, more capable of doing things than I am, for example, because all the boilerplate code, all the groundwork is already done.

Ronald:
[59:12] Yes. But that comes back to the question, how do you become better than you, right? In a world where all those other tasks are already….

Thorsten:
[59:22] Starts from scratch,

Ronald:
[59:23] Right? Starts from scratch, but if all the other tasks are already solved, all the problems are solved, then maybe it becomes harder to become really an expert in that area.

Thorsten:
[59:33] I'm absolutely convinced that the apprentices of the future, the young ones, that they really start maybe with something like assembler code, learning stuff like that. Really the absolutely basic things to step up to the level. And at the final end, they have all the tools, but they have a deeper understanding of what's going on.

Ronald:
[59:56] I'm actually very optimistic about what AI can do. I'm sure there will be many examples that will be really bad that happen only because people use it incorrectly or people want to make money too badly and make mistakes. And I'm not talking about using it for army type things, but let's say just in the normal civil society.

Ronald:
[1:00:25] But I think many problems will be solved. We're here at the MCT summit. I was today in a session, very interesting, by one trainer who said he's a certified trainer in Microsoft technology, AWS technology, and Google technology. And interestingly enough, he was comparing the three, and he said, well, Microsoft has really good documentation. AWS has better documentation. Google documentation sucks really bad. On the other hand, Microsoft has the exams really balanced and good. AWS, the exams are sometimes not so good, sometimes really good. All those things that he was describing, will probably just, those differences will probably just go away because having good documentation would at some point not depend anymore on a human doing that, but just AI just generating that and it will be at certain levels. So some of the things that we're now worried about or discuss even, this will go away at some point. Yeah. And I'm convinced of that, that it will be a force for good.

Ronald:
[1:01:37] The possibilities for AI. For training, let's say, both helping the students, and helping the trainer. A deeper question is, what do you still need to train, right? Or another question that just last week I read it in online an article about that. Is it still needed? If you're now beginning with your studies, is it still needed to learn a programming language or is coding no longer needed? I don't have an answer to the question. I do, I have. The normal answer seems, sure, you need to know that, but not many people know assembly now, right? Sometimes those tasks, those skills are not so much needed.

Thorsten:
[1:02:27] It's not meant to be that way that I give the answers. You are the expert. But in this case, I break this rule. I think I have an answer to that.

Ronald:
[1:02:36] Okay.

Thorsten:
[1:02:36] Um... Sorry, I lost the train of thought. I have to cut that out. What was the question?

Ronald:
[1:02:45] I was saying, if you're now starting, is it still needed to learn coding?

Thorsten:
[1:02:51] I break the rule. I think I have an answer to that. I think people will start from scratch. And there's one simple thing. I meet people that say, why do you learn Dutch or Spanish or Italian or German? There is deep L. And my answer is the same that I would have given 30 years ago. I say, I don't need Dutch to talk to you but if you want to gain a deeper understanding of the culture, if you want to learn something about your own language, if you want to learn something really new, learn Japanese or Korean or something like that and Deep L will not provide that. You get the perfect translation, yes, of course. But if you want to deep dive, if you want to learn a little bit about how do the people take, how do they operate, there is no other way to learn it. And so I'm absolutely convinced that people will learn programming languages. They will learn Spanish. They will learn Korean, maybe more than today. And to wrap up this chapter and open another chapter, simply think about it like this. You want an e-bike? Learn cycling. You want to be a conductor? Learn the piano. That's it. I think we can agree on that.

Accessibility and Special Needs

Ronald:
[1:04:15] Yes, yes, yes, yes.

Thorsten:
[1:04:16] I would like to open up a chapter that we, sometimes we forget about that. There are lots of people with special needs. And maybe in the future, when AI solves so many problems, we're all kind of handicapped because we can't keep up with that speed, etc. So if we take it a little bit broader, there are people, for example, one of the most capable musicians of this planet is Stevie Wonder. He's blind.

Ronald:
[1:04:46] Yes.

Thorsten:
[1:04:47] Yeah. You find lots and lots of people with special needs. And I think from time to time, it really helps if you meet these people, if you work with these people, because you get some special experience and you see the world through different glasses. And I simply mention this because I know that you have a very, very interesting experience in that area, because I know that story that I want you to tell now. You had the chance, from a Dutch perspective, a big story now. You once were for the royal family.

Ronald:
[1:05:26] Yes.

Thorsten:
[1:05:27] As ludicrous to a German as a monarchy is.

Ronald:
[1:05:29] Yes.

Thorsten:
[1:05:31] Don't say anything offensive. But you met the royal family, members of the royal family. Yeah. And it is such a nice and beautiful story.

Princess Christina’s Lesson

Thorsten:
[1:05:40] I just want you to tell us the story.

Ronald:
[1:05:43] Yeah. And that's a story from 1990. So a long time ago. Oh, what is it, 35 years ago? I was, at that time, was training Office programs, Word, Excel, PowerPoint. And I got a call from, I was already in contact with Microsoft as well, did sometimes presentations for them. And I got a call from Microsoft that

they asked if I wanted to teach one of the Office programs, Word, to Princess Christina, which is one of the princesses, meaning the sister of the Queen Beatrix, at the time. At the time, she was the queen.

Ronald:
[1:06:20] And she wanted to learn a word, a Microsoft Word program. Why? Because she wanted to write a book about windmills, which is a very quintessential, Dutch thing to do, apparently, because we're known for, what, wooden shoes and windmills. So if you want to write a book about windmills, straw baffles, maybe, about tulips. But she wanted to write a book about windmills, but there's a catch. She is almost blind. She has really thick glasses. I remember that because you never see a picture of her with the glasses. The glasses are actually so thick that she has to hold them. So if she wears them, one hand is holding it. And so we had to configure words on the computer in such a way that it was easier for her to read that. And that's doable, then the letters are larger and there's more contrast, etc.

Ronald:
[1:07:18] I want to do that of course. So I went to the Royal Palace twice actually where she lives and I taught two sessions, it was two afternoons on how to configure words that she could use it and then she could write the book about windmills for that. So that was actually my first experience with, with making the software suitable or adapted to the special need in this case was very low vision, unfortunately she never wrote that that windmill book but but still the experience was was was nice and now.

Thorsten:
[1:08:02] She passed away

Ronald:
[1:08:03] Yes she did actually some time ago already i would not be surprised if that's maybe now 10 years ago already. She passed away.

Thorsten:
[1:08:15] Did you ever have the... That she's different? I'll tell you what I'm focusing on. I have a friend, someone that I know. She's a teacher for kids with special needs. And me, being a teacher myself from my university degree, I never heard any of the colleagues talking about her students, her little children, with so much joy. You would immediately want to only teach kids with special needs because she's doing it so joyful. So what I'm focusing on is sometimes we think, oh, that life must be horrible. But did you get the idea that she is completely different than anyone else of the royal family?

Ronald:
[1:09:07] Well, first of all, people in a royal family are probably different than the rest of the world, right? So let's start there. But then I think what maybe, and I'm now talking out loud, that's probably not even correct.

Ronald:
[1:09:27] But being in a royal family, that probably means that everything is taken care of for you. So for her, that's probably difficult because for her, not

everything was taken care of, right? She had to make special adjustments. And this was 35 years, what did we calculate, 35 years ago? So maybe this was difficult for her to, to do her duties as as a princess and what do princesses do well officially nothing but but let's say they open galleries or they they, they uh they help good causes and and for her that was, really difficult if you see pictures of her you always see her at the hand of one of those i'm not sure what they call but like um assistance to the royal family yeah they always see their on the arm, and they were always helping her do that. So it must have been difficult for her to navigate that world because they're so often in the limelight. There's always pictures from them, and she could not participate in the way that the others did. And that might be the background of why she thought, you know what, I'm going to make my contribution in a different way by writing a book about windmills and how she came up with that.

Ronald:
[1:10:49] And it's interesting that you call it joyful. I once read an answer from Arnold Schwarzenegger, who is, of course, famous on three levels, right? He was Mr. Universe, and then he was a movie star, a legit movie star. And then he was governor of California, a political vicar. And this was online. Somebody was saying that it's so strange that there are special Olympics. I mean, the Olympics is the best, the fast, the highest jumping people in the world, the fittest people in the world competing. That makes sense, right? Because you want to know who's the fittest. And then the criticism was why would you have.

Ronald:
[1:11:40] Special Olympics for people, clearly they're not the fastest, clearly they're not the fittest. Why would you have them race to each other? And his answer was so, well, and he thought that that person saying that was crazy. And his answer defending the Special Olympics was really impressive how he could highlight that, that the Special Olympics were, if possible, even more interesting than the non-Special, well, I'm not sure what they call it, but the Olympics, let's say. And that's almost in line with what you say now. He was able to describe so well how important it was that.

Ronald:
[1:12:33] The Special Olympics were being held. and you have it at different levels, right? I think that in England, they do a lot with veterans, like special games for veterans. I think Prince Harry is very involved with that.

Thorsten:
[1:12:49] And we have to be clear about that before someone complains. I think from a technical perspective, you have two things that are differentiated. You have the Paralympics, how is that called, where people with, let me say, just one leg, with physical special needs. And the special Olympics is, I think, for people who are mentally not in the regular range. I don't know. Okay, the easiest way to say this in a perfect, polite manner.

Ronald:
[1:13:21] Then I think I was referring to the para-Olympics. The ones that's like two weeks after the Olympics and the same occasion. I don't think that there's such a huge difference.

Thorsten:
[1:13:32] Because there are people who are doing their best in either kind of sport. And I think it's very fascinating to see people do things that I couldn't do by

no means. And you see, they have a very, very special body because they had an accident whatsoever, and they didn't give up. And I think that's something that's very, very, it must be very joyful. I never saw that, for example, if you see wheelchair drivers doing rugby, I never had the idea that they don't get joyful. or that you see it, how can they do this?

Satya's Accessibility Drive

Ronald:
[1:14:11] Yes, yes, yes, yeah, exactly, exactly.

Thorsten:
[1:14:13] But anyhow, I think we can learn a lot. And since we just talked about Microsoft, which is a huge, huge company, there is also a lot of things going around to make services easier. It's simply a clever move because the more capable anyone on the planet is to use Microsoft products, the more people buy the Microsoft product.

Ronald:
[1:14:39] Yes, yes, yes.

Thorsten:
[1:14:40] But I think there's also a special background story related to the current CEO and his relationship to, yeah, people with special needs.

Ronald:
[1:14:50] Yeah, the current CEO is Satya Nadella, of course, since 2014, so 12 years.

Thorsten:
[1:14:56] So we're recording in 2026 for future listeners.

Ronald:
[1:14:59] Yes, yes, so 12 years after 2014, so he's now 12 or 13 years as CEO. And.

Ronald:
[1:15:08] Satya is immediately from the first year that he became CEO, made several changes towards making it more important that both empathy, as he says it, but also from a technical point, the accessibility functionality of all the Microsoft software was very important. And he, well, I wouldn't say they started in 2014, but he was a very proponent of it and if the CEO pushes something, that actually moves mountains, of course, right? Then everybody follows suit and it's still happening. It's still that Microsoft focuses a lot on accessibility and what often is described that the background, of his interest and his realization how important this is, is besides let's say a pure, business reason that you now gave like hey how how easier to wait for more money for more people the

more people use it sure that's that's a strict business reasoning but but also he he has described and several times he described that his son, has severe disabilities i think it's a muscle disease, celebrity pets palsy i'm not sure i pronounced correctly but a muscle disease, and he wants his son to.

Ronald:
[1:16:33] Participate and use those products in the same way and that was for him a big motivator and also a good reason.

Ronald:
[1:16:43] To understand how that can be made possible. He started as CEO in 2014 and accessibility conferences and accessibility functionality in, in all the Microsoft products was encouraged. And unfortunately, three years ago, his son, Dan, 26, died, presumably because of his disease or his disabilities. And so the son is now dead, but he continues emphasizing how important it is.

Ronald:
[1:17:19] To embrace accessibility and to make it a standard part of everything that Microsoft does, that they should always take that into account. And I think that.

Ronald:
[1:17:33] That works. I think the Microsoft products probably are suited for that. I didn't compare it with other products, but for him the reason to actually emphasize that in the Microsoft products. The way I experience that is we, as a business, are lab hosters, official lab hosters for Microsoft. That means that if Microsoft makes a training course, they make slides, what we discussed. They make course material on the learned side. They also make lab exercises and lab virtual machines. Those lab virtual machines they give to the lab hosters, like ourselves. And there are only a handful of lab hosts in the world but they gave one, to us and then every year they require a review of our public facing websites that they meet, certain levels of accessibility and that's just, Microsoft, well forcing is an unfriendly word but just requiring that all the parties that work at Microsoft meet those requirements. So that's how we got, well, interested in the topic and looked into it.

Markdown and the Web

Ronald:
[1:18:49] And yeah, I sometimes give presentations specifically on this topic.

Thorsten:
[1:18:53] Yeah, the fun thing is that two, on the first side, completely different topics come together all at once. I explain what I mean. I'm a huge fan of reading biographies. and I always want to know some background information. For example, Anders Heilsberg, this very interesting interview on YouTube about his career. I loved watching it. Or I frequently watch this kind of videos, reading books, etc. And one book that I read a long time ago is Weaving the Web by Tim Berners-Lee, the inventor of the World Wide Web, of HTML, HTTP. And if you read this, you will learn that what we today would call the

semantic web or semantic approach was actually his first idea. So the main thing that he invented, the one thing that stands out is a hyperlink, a link from one document to another one. He came from the scientific world. He worked at the CERN in Switzerland. The Large Hadron Collider, is that the word? And I hope I pronounced that correctly. Yes, yes. Anyhow, but you learn, he says the World Wide Web was never meant for fancy sales graphics.

Thorsten:
[1:20:16] But HTML evolved and the salespeople took over and all in the timeframe of, let's say, 2000, 2005, everything was nice and beautiful for people who are able to look. But they were not very machine readable. And that also means not good for Braille readers and stuff like that. And the W3 org where Tim Berners-Lee works they do a lot to correct this let me say this like this without too much success I would think they invented XML from what I know that's also not a huge success story the lighter version JSON is a bit more a favorite today but what I want to focus on is One step forward, someone solved this problem from my approach. We do not honor this enough. Mr. Gruber, the famous Apple blogger, he was the one who invented Markdown because he was fed up with his website. He wanted to have a simple way to create blog posts.

Thorsten:
[1:21:32] And so he wrote, I think it was a Perl script, and he invented Markdown. So a hashtag, a pound sign is a header. Two of that is simply a header of the second category. Just using the tab creates code and so on. And all of a sudden, this was one ingredient that became very, very popular with stuff like GitHub and so on. All of a sudden, all of the places Markdown took over. Today, all the Microsoft Learn content is actually Markdown. Everything that you read on GitHub is Markdown, etc. So why is that important? When you read the book that Tim Berners-Lee wrote before there even was Markdown, he always described what actually Markdown is today. He described that he wants the web to be nothing that you read only, but you read and write. And to me, today, fiddling around with Markdown, files is the perfect example how it should be because it's always, per definition, it's machine readable. It's per definition always a semantic approach. It's totally clear there is the header, this is the text. You can't do so much wrong with that.

Thorsten:
[1:22:53] All of a sudden you find out Markdown is absolutely perfect for the Latin language models. If you use today in the year 2026 something like Claude

Thorsten:
[1:23:04] It's breathtaking how good they understand code on GitHub, something like that. And all of a sudden you find out that it comes together with all these people with special needs because it had never been easier to create a website, for example, with something like Hugo, that is also friendly for people who can't see. Yes. Because by nature, this is the semantic approach. So what I think, at the same time, we get machine-readable data, which is very important for the evolution and the revolution of AI. And at the same time, yeah, we do ourselves a favor because we recreate the web just the way it was meant in 1990. And that influences a lot, right? So to wrap up with all what we said today,

Thorsten:
[1:24:01] I can't ignore one single technology that's really breathtaking. These days we're always making jokes about PowerPoint slides. There is a way to create PowerPoint slides based on markdown. So if I now think what is wrong in the world of PowerPoint, there is no semantic approach. There was no

semantic approach right now. You can go and very easily you can create with just a bunch of markdowns. The AI can do that. You can create documents. And there is, for example, a technology called Mark that renders the markdown into PowerPoint slides. And actually, I do have high hopes that we get away from that sales and shiny, shiny approach back to the content. And all of a sudden, everything comes together. So in this case, And the artificial intelligence helps us to create meaningful content for ourselves, right? Have you ever fiddled around with something like that? Do you think my approach that Markdown is really a giant leap forward,

Markdown in Practice

Thorsten:
[1:25:11] despite the fact that it's just such a tiny innovation? What's your approach on that?

Ronald:
[1:25:16] Yeah, I think so. I like how you put them in order, XML, JSON, Markdown. And yeah, we do a lot with Markdown because all our lab exercises that we use come from GitHub. And therefore, they're in Markdown, of course. We consume them and then we don't direct the students to go to GitHub. But in our own user interface, we just render the Markdown.

Thorsten:
[1:25:46] Everything can be automated easily, right? Yes, yes. It solves a lot of problems.

Ronald:
[1:25:50] Yes, yes. Well, and what I also like, you call it machine readable. I also like that it's human readable because you could even print it, let's say, right? Because it's all printable, readable characters, just like indentation and all that. And you could even say that the Python language is almost boring, borrowing concepts that are the same, right? People find it also very easy to work because you just do simple indentations. And yeah i think for some of those i actually remember the very first time that, that that i that i encountered i still remember the very first time i encountered the virtual machine i also remember the very first time that somebody was explaining to me you know what it's very easy i do this in this md, markdown format i've never heard of it at that time but that person was so, enthusiastic about it, almost like you're describing it now, that the fact that they were so enthusiastic about it gave me an indication, oh, this must be important, because otherwise this person is not so enthusiastic about it many years ago. But yeah, we use Markdown for all the lab exercises, the text of the lab exercises that we show in our lab hoster user interface.

Ronald:
[1:27:12] And we use it for two benefits for us. The one is that we can easily render it, but the other one is that we can also easily just read and change the text rather than needing some complicated editor that knows all the formatting. We just, in a normal editor, we can just open it and change any of the text, including the formatting. So very, very straightforward. And the fact that machines now also consume it for training the LLM models is something that happens there as well then of course.

Thorsten:
[1:27:52] As always within the last 50 years that I'm on this planet, very interesting times. It goes on and on and on.

Learn for the Joy

Thorsten:
[1:28:00] Ronald, I do thank you a lot for taking your time. I think we should now leave it here. But I would finish with something. If you listen to us until the end and now, okay, what to do tomorrow? I think I have high hopes in the future. I think everything will be easier. But that means we need more talented people. We need more people that are more clever than I am. And how can you reach that level? I think I have some simple advice. First of all, learn cycling. Second thing, learn an instrument. Third thing, learn another language whatsoever, Korean or Dutch. Beautiful language from my point of view. And learn a programming language from scratch. Is that the future that you wish for your...

Ronald:
[1:28:57] Yeah, I think so. And I think what we didn't stress enough, That programming not only needs to be for the end result, but it can also be fun. I mean, all the other things that you mentioned, learning a language, music, learning an instrument.

Ronald:
[1:29:18] And traveling, you didn't mention that, but that broadens your view where you do it for fun. And programming can also be done for fun. The example I heard the other day, is that computers are, even without AI, are super good in solving Sudoku puzzles, yet nobody does that because people that solve Sudoku puzzles, they like the challenge of doing that. And I think that's a role that coding can definitely have. So that's just nice to be involved with that. And I heard one British, I forgot his name, Jimmy Carr, I think that's a British comedian. He said it very nicely. He said it's not so much the pursuit of happiness that he finds very important, but the happiness of the pursuit. So it's fun to solve a Sudoku, not because you solve some problem, but just the process of doing that is the fun part of it. And I think many of the things, learning a language, learning a natural language, let me say that, or learning a programming language because you learn coding, they all fit that category as well.

Thorsten:
[1:30:38] Famous last words.

Ronald:
[1:30:39] Perfect. Van harte bedankt. Yeah, welcome. Leuk om te doen. Zeker.