

**Podcast title: Cloud Reachers**

**Episode: 46, About augmented reality with Teresa Rizzi, hosted by Tomi Kauppinen**

**Podcast guest: Teresa Rizzi, a master's student in Human-Computer Interaction, University of Trento, Italy.**

**Length of recording: 1 hour 7 minutes and 7 seconds**

**Transcription notes:**

N1: Narrator 1

Host: **Tomi** (Tomi Kauppinen)

Episode guest: **Teresa** (Teresa Rizzi)

**Transcript**

[Outro music]

**N1:** Alto University podcast.

**Tomi:** This is Cloud Reachers and Tomi Kauppinen. Today I want to ask you, Teresa. How are you doing? Where? Are you now?

**Teresa:** I'm fine, thanks. I'm in Italy right now. It's really sunny outside. It's actually like 15 degrees. So it's nice.

**Tomi:** And in Italy, where in Italy exactly?

**Teresa:** I'm in Trento. That's a city in the north of Italy. And Trento is really beautiful because we have very high mountains and underneath the mountains, we can see the snow. But we also have the sun and a bit of wind and it's chill. It's really nice.

**Tomi:** I have to visit that tent one day. I've never been there but one day.

**Teresa:** Yes, you should.

**Tomi:** Yeah, let's, let's plan. Hey, can you tell us please a bit about yourself? Share to the listeners about yourself, your activities, your background, and everything.

**Teresa:** Yes, of course. I have a bachelor's degree in psychology from the University of Milan. I switched to human computer interaction, that is actually UX design for my master course. I wanted to get closer to computer science because I want to get to know this enormous technological innovation field and human interactions with technologies.

Right now, I'm in my second year of this master course at the University of Trento and I'm almost done with my course actually. Currently, this month, I am gathering some extra credits from the School of Innovation that is an interdepartmental school from the University of Trento, where I'm learning a bit more about management, marketing, businesses and companies in general, because I feel I have this gap in my knowledge. Of course, I have a very strong psychological human centered vision, so that's why my final goal is always to satisfy users' needs and problems in general. Not my projects, so I still remain a psychologist, but with the computer science vision.

**Tomi:** I love that multidisciplinary, because you are covering so many fields and learning so many disciplines at the same time. And this is exactly why I'm so happy to have you here joining me for this episode because I would like to have a deep dive with you on the following questions: what are exactly these skills we need to develop and how does the future look like? And you are so super active in many, many ways. You are an active developer student and you are also a hackathon winner. So, how do you see the world now, you know, local environment in Italy and what students want to learn and also perhaps some mention about your hackathon winning solution as well?

**Teresa:** Yes, of course. So actually, to respond to your question, we are super lucky because with my colleagues, we started research about this topic because we ask teachers and students what are the main problems in schools and in general with learning. Because we are creating a startup about the project, I'm going to explain, the one with what we won in the hackathon.

So, a girl we interviewed from high school actually, gave us amazing insights about what you asked. The environment in Italy and problems in general with a high school. And she said that in her opinion, schools are too generalized, meaning that you know they are constructed, constructed to fit everyone. Students feel lost sometimes, because they do not find a clear passion or specific interest to follow. So for this regards I would say that an amazing starting point would be to give the students the opportunity to choose their own courses starting from high school and letting them clear their own path, just to create their passions and soft skills because those are super important for their future career. And she (the girl we interviewed), she also says that sometimes professors do not raise interest for their subjects, and it make students feel alone when studying. And that's a pity, because if you think about the professor, they should be like within these professional roles, where they have a lot of knowledge to share, but in some cases here in Italy ( I don't know how it is in Finland), but here in Italy, in some cases, students do not grasp exactly the concepts and they need the like lessons or classes. For these reasons, we created the

project we won with at the hackathon that is called 'Hachi'. That means 'being Japanese', and later I will explain why. So first of all, I don't know if, the listeners know what a hackathon is.

**Tomi:** Yeah, perhaps. It was the digital education hackathon, an EU organized hackathon, but which year was it? 2021?

**Teresa:** Yes, 2021, we won that one. Yes, because then they stopped in the year 2022, and they will come back later this September 2023. I'm really excited.

**Tomi:** Yes, this year.

**Teresa:** So a hackathon is a challenge that a university or a company proposes, and these challenges need to be completed in a certain period of time. The DigiEduHack was actually 24 hours of challenge, and we participated in the DigiEduHack 2021 just to have fun and to collaborate as a group. And the main themes were about digital education. And that's why we thought about the problems we knew, about students and learning. And our solution rotates around the concept of helping students, people in general, to visualize abstract concepts and ideas thanks to augmented reality. In particular, we created hexagonal cards with the AR codes that is like a QR code above them. That gives the possibility to visualize something through an app like on an iPad or on a smartphone. Students can create concepts thanks to these cards because they can visualize something, and then they can make the cards interact between them.

So, for example, in 24 hours computer scientists in my group created 2 Color Balls, one was the blue and the other one was the yellow, and the interaction between those cards was the green of course. And if we look at the future, we could do amazing things with the with these cards, because augmented reality is at the starting point nowadays, and in the future it would be it will be really used and with these cards you can really create whatever concept you want like you create. Ideas in math, physics, chemistry, astrology, history and so on. So, thinking about students and the problems they have, we wanted to enhance creativity and critical thinking and that are really important skills related to active explorative learning. and the name. Looking back at the name: it's "Hachi". It is a bee. We gave the project this name because the bee lives in a hive and the hive is a mix of the sum of hexagons. That's why we call it like that.

**Tomi:** That's a beautiful, beautiful name. That beautiful story. Hey, may I ask about the cards? How do they work? You have different colors, blue and yellow you mentioned. Do you have different concepts for different color cards or how does it work? And then you combine them or how does it work?

**Teresa:** Actually, in 24 hours we couldn't do that much creation and design, because we thought about having just 3D models for the augmented reality. That's why in online you can find easily 3D models of both. But, in general, the idea is to have a lot of concepts and 3D models and design that we can code in the card. The idea is that the cards can be recoded with other ideas and the interaction between them can be chosen by the teacher who uses the cards, for example. We thought about different concepts, for example chemistry. If you have three cards, 2 hydrogen and one oxygen, you can mix those three cards and create water, of course. But also we thought about history. For example, if you have one card with a character, one card with a date, or a year in a certain period of time, and for example a city or a country, you mix these three cards together, and something happened, so history is finally concrete, and maybe students can learn it easily, because I was one of the students that had a problem in history just remembering everything, dates, characters and countries.

**Tomi:** Well, yeah, I think we all had. And some people have always remembered everything, but I prefer seeing the big picture and then it helps me to remember. This is brilliant. Learning is so much about finding connections and finding linkages between different things. Your solution sounds like it's going exactly to the right point.

**Teresa:** Thank you, we hope so, we're working on it. Uh, we created like a startup in this school of innovation I was talking about and that's a very safe space where we can try to be entrepreneurs and work on this idea, like without losing money or without losing time because we are still students. So we can try it out.

**Tomi:** Hmm, that's amazing. Is it like a space where there is like other startups as well, so can share resources and discuss? Is it possible that that there is like a merger of several startups suddenly or? Are there other startups working on AR solutions in the same space or at the same time?

**Teresa:** I don't know. Because the School of Innovation is for students to learn how to build a startup, so actually it's a competition. So we are not like sharing resources, but at the beginning we had to create groups. So we were like 80 people. And we shared ideas. For example, we shared our project 'Hatchi' and we were three people and we needed to find other three people and one of them needed to be an international, for example from EIT, another one needed to be from business study, and so on. So the group should be heterogenous. But our startup is actually competing against other startups in this learning process, so it's fun.

**Tomi:** Ah, OK, I see it. Not yet time for collaboration with the others.

**Teresa:** It can happen actually, because, in the same room you find friends and you speak with them. But in general it's a competition.

**Tomi:** Yeah, there is always time for collaboration and then there is a time for a competition too. Competition is, of course bringing some excitement, but it's a careful balance between these two.

I would like to ask you about your opinions on Augmented Reality and online learning and all virtual communications. I remember in Brussels, where you were attending the workshop, I was running about the redesign of the digital education hackathon. So you mentioned a lot of very interesting things there about the use of virtual platforms, online platforms people actually use. Can you share with the listeners your views about those? How do you see what works currently as of today in the world when it comes to virtual communication and how do you see the future will look like?

**Teresa:** Well, we have a lot of concepts here, starting with augmented reality that nowadays works because it's innovative and it's easy to use. It's not really cost effective. And it works because it's a mix of physical and virtual environment, so it remains. And you can visualize augmented reality through your device, everyone is used to use their own phone or iPad. So that's why augmented reality is easy.

But then coming to online learning and virtual communication, they work for other reasons. For example, because with online learning, students can keep up with assignments, revise lessons if necessary, but only if the professor recorded them. I think that online learning works only if the professor really know how to organize the virtual space and really know how to upload files, documents and recording and so on. Otherwise it's like a waste of innovation. And regarding virtual communication, I think they are necessary, we saw that we saw that they are necessary just in the pandemic period and now we are continuing to use virtual communication. And it's a way more efficient way of communicating respect to like emails or messages, messaging in general. And it's quick and gives the possibility to be present in the same space, even if you live abroad, like for example me and you today, you couldn't do this podcasts.

**Tomi:** I've never been to Trento and you're never been in Finland. So I mean, things can be of course organised, but then this is now happening just so super-fast. I mean just opening the connection link and then we are ready to record.

Can you give one or two examples of online course that doesn't really work or and then perhaps an example of another course that that works well. So what kind of design principles help to make successful learning experience for students?

**Teresa:** That's a very good question. Because I'm currently attending some online courses like on the Udemy platform, I don't know the exact name. It is a platform where you pay to attend these courses and I can say that it works because it has gamification inside. So you have like a to-do list with concepts divided into sections. The sections can be divided into topics or into weeks or days. In the first week you should do this and that, in the second week you can go on with another topics and that actually really works because it gives you time stamps to follow. And to-do list to check. So that's really nice. You watch the video, you do assignments and then the box is checked, it's really nice. You can move on easily without getting blocked. Also, other thing that works are the communities created on these online platforms because you can write on the chat or on the phone and somebody else answers you. Maybe the professor who's attending the lecture? But also other students that have the same problem you have and that's really nice. The important thing is, as I was saying before, not leaving students behind, so professors or people who created this type of courses should take care of the students and should listen which type of problems users have, and do not forget that maybe there is someone who's a bit late with that assignment for some reasons, or who is on the other side of the world and is attending your course in real time because of different time zones, The connection with people is really important.

And, also online courses can be completely offline, meaning that teachers can upload videos and you can watch them whenever you want, but they can also be on zoom so you can attend. Not in presence, but you can be there with the professor and you can ask question. And you can feel like you are following the real lesson, even if you are at home. I found some tools that work really, really well in online and also in class, but in online courses it's better. For example the Mentimeter. Or tests or questions, interactive tools. They are super nice and make you feel like you are interacting with the professor, that really creates the engagement and help you learn, be present and stay focused at least.

**Tomi:** Yeah, absolutely, it grabs your attention. You mentioned Mentimeter. Is there a difference from your point of view, whether it's used online or in the classroom or is it the same experience or can you find what is the difference?

**Teresa:** I think it's kind of the same experience, because in class you are answering through your phone, so you are alone with your phone, and you see the results on screen. The only difference I can find is when the professor set the sets the multimeter as a challenge. I don't know if you used that before, but every question has a correct answer. A Mentimeter takes the time in which you respond, so it creates like a rank, a ranking list, and the ranking list really works if you're in presence. If you are with your colleagues, you're trying to respond as fast as you can, and you see the writing list appear and you will

know you're the first one or the second one. And you also see your colleagues' position in the ranking list and if this ranking list is presented online, it's not effective, because maybe you don't know the other people attending the course with you. And that does not have the same effect as in presence, for example. You know the challenges are really motivating sometimes. Especially if you are with your friends, and if you want to be first.

**Tomi:** Yeah, of course. That sounds fascinating. Because you really see the others, right? And in online environment you don't. I mean you don't feel the presence of the others.

**Teresa:** Yeah. I also have the chance to be present in two types of zoom meetings. For example, the first one is where everyone has their camera shut down and the other one, where everyone has their camera on, like me and you are today. This really has the big difference. Everyone should have their camera on during meetings because it's effective and it helps you to stay concentrated and seeing that the others are following the lessons with you and have focus on what the teacher is explaining is really effective. It's the same feeling you have when you are following an online course like in a library. You are alone with your headphones and with your computer. But you know that everyone around you is studying, so that helps a lot to stay focus. Otherwise, if everyone has like their camera off, it's really annoying because it seems like you're listening to a podcast that maybe it's not really interesting because it's a lesson, so it's not a podcast and. That's a pity sometimes.

**Tomi:** But of course, there are different podcasts like this one that we are now recording, because I mean we know those lectures and podcasts that are like monologues that somebody is just sharing a story, and it might be good one as well, of course. But then if it's a too long story then, it might start to be kind of boring.

**Teresa:** Yeah, it really depends on if it's actually only theory, theoretical materials and then it can be boring. It also depends on the on the time of the day is it in the morning or evening.

**Tomi:** Thanks for sharing this insight, because what I'm hearing now is that that human connection is the key in learning, that you have the feeling that there are other people there as well learning at the same time, sometimes competing, sometimes collaborating. There is somebody, I mean the educator who is caring about that people are learning and that they are not left behind. It is the human connection.

**Teresa:** Yes, that's really important.

**Tomi:** Is it the same? I remember you were saying about emailing, that people don't email as much. Of course, we still see a lot of emails, but it's all these other social media platforms, that people are essentially using for communication. So how do you see the balance for yourself? Is it like 80/20? 80% all the other platforms and 20% emailing these days. Or how do you communicate with other students and in the university or with your new startup colleagues?

**Teresa:** While with my colleagues and university friends we use social media like Telegram or WhatsApp. And we follow each other on Instagram so we know what they are doing in their free time. And it's like it's an intimate relationship if I can say that. But with professors we use only emails and it's OK. I mean, of course it's formal relationship and it should remain like that, but sometimes the professor takes a lot of time to respond like 10-15 days to respond. And you are feeling very, very left out and you don't know if they have seen your e-mail or if they are trying to look for a good answer. Maybe you asked something about resources, book, articles, I don't know. I don't think that messaging with the professor is great idea, because it really depends on the relationship you have. Some younger professors gave us their telephone number because they wanted to create like, a group where he or she can send us messages for example, if the classes were canceled for some reason, you can send the message and you know for sure that the students are going to read it. Otherwise, emails are OK, they are formal, as I said. But I'm thinking about fast messaging and zoom meeting and emails. I think every communication has its own meaning, that means if you have something small or short to say then the e-mail is fine. If you have something more important and long to discuss, you're going to choose a zoom meeting or in a meeting in present.

**Tomi:** Yeah, face to face meeting, yeah.

**Teresa:** Having a Telegram chat or WhatsApp chat with the professor sometimes is meaningless because you don't have anything to say to the professor, unless it's urgent for some reason, or you are conducting research with this professor. Or you have a meeting to attend together. I don't know, but in general, if you are just attending their course, instant messaging is not the best solution. I would advise you and I would always advise to be present and go speak with them if you need something.

**Tomi:** Sounds very good and all the listeners who are professors, please reply to your students via emails. Faster than you know in in 10 days or 12 days. Of course, people get a lot of emails. Then it should be considered as a super important like priority one to answer crucial questions coming from students. Because they're waiting and it's it doesn't sound fair to wait for 2 weeks. I mean, I remember when I was student and I still remember those progresses who never replied. Then I also remember those professors



who replied super-fast: 'Yeah, of course'. 'Hey, join me. Can you visit my office?', 'Let's talk about it' and it's amazing.

**Teresa:** And for questions, as I said, it's better to confront them, maybe after lesson or so on if possible. Otherwise on some learning platforms there are forums or rooms where you can ask questions and they are the best space to ask questions regarding the course, but you should know that the professor is currently looking at the forum. I mean, if you write on the forum and the professor doesn't see it, doesn't look at the forum so often it's useless.

**Tomi:** Should be should they be like time stamps, when the professor was last time seen there?

**Teresa:** Yes, I think that's the best idea. And it's a compromise between having many, many emails from students and having a forum. I mean, you delete these emails you receive in your e-mail thread, and you just look at the forum and respond to the students there. It can be a solution.

**Tomi:** And it's also more practical because then everybody else can also see the discussion. I want to tell us I want to ask you a tricky question. So how do you think about the future? How far away should we go like 30 years from now 2050? So, how do you think the future will look like, how the university will look like in year 2050? What is a dream university of Teresa?

**Teresa:** Wow, that's a difficult question. Just because I cannot really imagine what I was as in the future in terms of technologies and innovation, we don't know. How have the learning system changed and which type of technologies we will have? But if I have the possibility to dream....

**Tomi:** Yeah, you can dream. You can decide.

**Teresa:** I would say that the mix of artificial intelligence and human professors would be excellent. I strongly believe in human contact, so we should keep it, there should be a human professor in front of us that should have empathy with us, or trying not to understand if we are there with our minds. But also we should have artificial intelligence as the support for the both the students and the professors. Just to have additional information, updated information that maybe the professor doesn't know about. Also artificial intelligence can be used in learning platforms in order to help teachers and students to follow the course, upload documents, remember something they can forget, or just to relieve the cognitive load, also, in presence. Because sometimes university can be really stressful, both for students and teachers and maybe this type of stress can be relieved in certain occasion by artificial intelligence. And I don't know. We should see.

**Tomi:** That sounds fantastic! Would that also solve the emailing problem because now the AI would answer immediately or in a few seconds: 'OK, here are the articles you should check out'.

**Teresa:** And also, if we see 2050 like in 30 years, I believe that in 20-50 teachers will belong to my generation. So, 50-years old people I think or younger if they are young teachers. And if my generation will be teachers and professors in general, I hope that they will have learned something from today's classes. And maybe they could improve their own methodologies, eliminate, or decrease the little defects we have today. Hopefully like we learn from our experience and with the help of technology and innovation, university and classes can really become effective without, I don't want to say without books, but something related to learning by hearing. And also retrieving information in a different way.

**Tomi:** You know, holistic approach like the balance, discussions, listening, learning by doing, perhaps applying the theory. What do you think, will there be teacher holograms in 2050?

**Teresa:** Maybe. I hope that there will be research about holograms because holograms can be seen as similar to zoom meetings, for example. So, the professor is not there, but it really depends on how they will be created. Meaning that if the hologram really represents the person with skin and bones, maybe it can be affective. But if the holograms will be like what we have seen in the movies like this blue blurry images, I'm not sure they're going to work like so. Zoom meetings are the same, I think.

**Tomi:** I mean, it's fine. But it's only a substitute for the real physical presence, totally agree. Hey, another tricky question: can you share some turning point in your studies, life, something that made you think differently?

**Teresa:**

Yes, of course. There was a certain point during high school where I completely changed my approach to learning and attending classes, and this approach I found during this summer break between the second and third year of high school. And it is what I am having right now with school and studies. Before that summer, between the second and third year of high school and in middle school, I was a typical child who studies just to pass the exam and the minimum grade here in Italy is a 6 out of 10. I don't know where you live, but here you must get the six to pass the class. And I always was always between 5 1/2 and six and I just did the bare minimum to get the six and that was it. But during that summer before starting the third year of high school, something happened and I understood that I was not the student my professor was talking about, I was not the girl, who does not want to study and blah blah blah, and I changed my

attitude and I worked in order to change everyone's perspective towards me because that's really important.

That was really important for me: not to be seen as the one who doesn't want to do anything. I didn't like that. So, I started to redeem myself from the bad reputation. I am excited to studying from my own learning and my own career and university. If I have to think about that specific period like I was in 15, maybe if I felt older, I don't know. But the point is that I had older friends that were completing their final exams in high school. That in Italian is called 'Maturita'. Yeah, it's like matriculation exam, but it's like the final exam. and they were passing with the really good grades, and they were starting university in that September. So I thought that I could be like them too. They were like, really a cool trade and they knew a lot of stuff and so I wanted to pass that final exam with a really good grade and I started studying and paying attention in class. And I think in this case for high school students, intrinsic motivation is always the key.

And sometimes in middle school you are in this very difficult period called Preadolescence where school is not your main point, because you have social moments but teachers and parents, for example, can try to grasp attention of the child and try to inspire the children with novelty, innovation, and also a clear idea of what could be our future self, the perfect self, what type of job do you want to do? What type of university you want to attend? And we need to dream big. Like, do you want to go on the other side of the world? We want to learn a different language and that really motivates students. Just because they know that they can move, and they can be whatever they want. And that's what changed in me.

**Tomi:** Wow, thank you for sharing your beautiful story. Now you when you say it's it totally makes sense. So, there were examples from your friends, but then a lot of careful thinking also. You must have been thinking a lot that summer.

**Teresa:** Yes, I was there on the beach thinking why I want to get every time 5 1/2 or 6 as a grade. I was literally not studying. And that I can do way better. I can just pay attention in class and see where I go from there and just paying attention. I was really learning, and then when I was at home it like sometimes it's easier for you if you pay attention to study. Really depends on the child, but I was lucky in that case. And it was really hard to make to change my professor minds because, you know, if you are a professor or a teacher, you sometimes classify your students in boxes and you try to not have prejudice, but it's impossible sometimes. I was the girl who got always 5 1/2 or 6, so, I worked really, really hard in the 5th grade in the last year of high school. I got to get 8 or 9 out of 10. I was extremely happy because that was

my true self. And when I found my true self, like an 8 or 9 person, let's say, I was extremely happy. And that is why right now I am good at studying, because I know where I can get. I know where my limits are, and I know how to be realistic.

**Tomi:** That's amazing. Did you also learn how to learn, how you personally learn things? Now I'm super curious.

**Teresa:** Yeah, that's really hard actually because. I remember my mom tried to teach me how to learn and that it was that period in the middle school where I was on autopilot mode and didn't care about school. In the last year of high school I started to look for a method. Obviously, it's different from classes like for example history has in its own method. Math and physics has their own method. And at a certain point I found the one that worked best for me. Just trying and trying and trying.

And for example, right now in the university in the Bachelor, that's pretty theoretical I just read book, read the slides and listen to the professor while he or she explains something and take notes. Then I try to put all together in a big resume and then try to revise this resume writing another small resume, often in bullet points. And then to revise the bullet points, try to remember what the teacher said in class. So I have like the whole matter in my head, but I try also to visualize things, but that's for theoretical lessons, while for practical lessons, if we have experiments in lab and experiments in psychology to learn, for example, that's easier if you visualize things. So if you have a timeline, where you put things in order. So I would suggest trying different methods and seeing what works best for students. It really depends on the subject.

**Tomi:** Sounds very familiar. So you are using kinetic memory because you when you draw and make bullet points yourself.

**Teresa:** Another thing I learned is that you cannot remember anything in one or two days. You have to take time. You have to study for a month. So maybe you start a month before the exam. You start to revise things, not because you have to learn everything one month before, but because the brain needs time to concretize the information in the hippocampus. So, try to start before and try to read and learn maybe you don't need to rush. Just build memory as you would build a house. Information after information after information after information at the end of the month you will remember everything because you know memory is not built in one day, is it's in one or two days, it is impossible.

**Tomi:** Yeah, Rome was also not built in one day, right? Yeah, I love that: build your memory like you are building a house or a city. I will remember that forever. So, thank you.

**Teresa:** Yes, it's really important. I think one of the things that should be included in high school is a course on how to study, how to build memory, how to pay attention, how to find out where and when you are the most productive? I mean someone is more productive in the morning, someone is at night. And also knowing physiologically how brain works. It can be effective as well because after my bachelor degree, I know how memory works, but really this knowledge really helped me to learn anything. And then what I was saying with time and with rest, it is like a muscle, you have to work on it. But also remember the rest, it is as important as practice. Because our hippocampus concretizing the information during our sleep, it's recommended to revise topics before going to sleep, and then you just wait and the next day you will remember hopefully more than the previous day. And if you are doing that for several days it will help you a lot.

**Tomi:** I love everything you are saying. I speak French and German in addition to Finish, Swedish and some English. And how I have learned French and German is by listening to some podcasts and stories just before going to sleep. You listen for 15 minutes or half an hour. Next day you feel like you speak that language!

**Teresa:** Exactly, yes. Also, for this reason for the thing we were saying about sleep, it's really important to not try to do your best in one day, for example studying for eight or ten hours. It's not effective. I mean, you're just there losing attention and trying to get to know everything, hoping that you will remember everything the next day, it's impossible. Just be present two or three hours a day and you're fine with the concepts. It's just a matter of scheduling really well what you're doing, what you're studying day by day. And remember to give rest to your brain and mind.

**Tomi:** You know, and it's also much more relaxing, isn't it? I mean, if it's anyways we can only learn a few hours a day, then let's do that. I mean then. Of course, you can still be attending lectures and socializing and everything like that. For example right now I'm learning for the exam. It's not even possible to do more than 3 hours, it won't give me much. So why do more anyway?

About learning: I want to ask what did you learn the last time? Did you learn it online or by reading a book or how did you learn it?

**Teresa:** I've learned a few things in these days through books or lectures at the *School of Innovation*. In a book I'm reading, I learned about parenting from a more psychological perspective, but that's a bit too hard to explain, so I will tell you about what I learned in the School of Innovation, because that's really nice to know for everyone.

Because I was attending a marketing class and our professor explained the 'Job to be done', the theory and the methodology. It is a framework used in innovation and marketing, but in my opinion, it can also be used in research, generally speaking. And it's a perspective on why consumers buy products. This theory that's called the 'Job to be done' says that people do not buy products, they hire them to do jobs such as solving or avoiding problem for fulfilling their desires, accomplishing tasks, achieving goals, make progress in life, and so on. And on YouTube you can find video, an interview by the founder of this theory whose name is Clayton Christensen from the University of Harvard where he explains why consumers hire a milkshake in the morning, for example. Do you want me to spoil it for you?

**Tomi:** Yeah, yeah, totally, please. Let's totally spoil it.

**Teresa:** I'm going to spoil it. For Clayton, the founder of this theory and his team, the job of the milkshake in the morning before work was the same for every person he interviewed. These people were all workers with a long and boring drive to work, so they needed something to do while they driving to work to keep the car ride interesting. And if people do not have anything to hold in the other hand while driving, they would get bored. So this is one job was just to have something to do and the other job is to not get hungry in the morning like you know at 10:00 o'clock when you feel that you are a bit hungry because you had breakfast two or three hours ago. Consumers wanted to mitigate that hunger with this milkshake because the viscosity of the milkshake does these jobs better than the other competitors, and in this case the competitors were bananas, bagels, chocolate bars, coffee doughnuts, and so on. And he explained in the video why these competitors are not very good against the milkshake and the moral of the story. What I learned is that if you really understand the job to be done of the products, interfaces, tools and so on, then the question 'how to improve these products?' becomes very obvious. If you know that the milkshake is not chosen because it's good, but because it has this viscosity, now you know what to do. You know what people are not buying coffee. You know what they are not buying breakfast, for example. And that's really nice to know because. That's another point of view.

**Tomi:** Hey, thank you for sharing. Now, now I also learned it and now all the business also learned the job to be done.

**Teresa:** Exactly, it is 'Job to be done' theory.

**Tomi:** Yeah, that totally makes sense. I didn't know about it. I had no idea I. But now when you explained it, I became a big fan of this theory.

**Teresa:** Yes, it's like a way to research needs, but not really asking about needs, I mean, if I ask you, why do you buy a milkshake? The first thing is because it's good, because it tastes good, but that's not the job your milkshake is doing, so you must dig deeper in this. And in marketing and in research, this theory can really help.

**Tomi:** Now I have to think about everything through that lens.

**Teresa:** Also it's actually the same idea with design thinking. I don't know if you know this example of the brick, maybe Kaneman was talking about that. What is the job the brick does? It can build a house, but it can also press against paper, keep it on your desk. Or it can also be somewhere you can sit, or it can also be I don't know, it can be everything. It that's the job the brick is doing and it can be very different from user to user, if you think about that.

**Tomi:** Makes totally sense. And, I mean, there are so many things and aspect and you mentioned design thinking I was also thinking about different lean approaches on who will find this product useful or service useful and when exactly and everything can be now looked at through that lens.

**Teresa:** It's really nice.

**Tomi:** Now I know what I will pitching in my next videos.

And my final question, which I ask from all my guests. As you know the podcast is called Cloud Reachers, so reaching out some dream or something that should be done, but perhaps it's not yet here. So in your mind, who can be a Cloud Reacher? An organization or a person or a group of persons, anything.

**Teresa:** That's a pretty hard question because nowadays I try to keep on track with progress in terms of innovation and not with people or organizations. But if I have to think about one person that is really creating innovation, I will think about Elon Musk as an entrepreneur. I mean, I don't want to sound boring because, you know, Musk has its pros and cons, and we know everything he achieved, every type of investments he have done, like PayPal, Tesla Basics, Solar City, and he also owns a large part of Twitter. But I think he is a Cloud Reacher person in my mind because he presents himself as power, as a powerful person, but also lets himself fail and retry with other projects. And I also observed that every time he gains a lot of money from a project, he reinvests them in another project and this is what I admire in innovation: not stopping at the first project because you are gaining money, but move on with other types of ideas. And that's why I think he brings new ideas forward and try to see what's there for us in the future. Like, of course he has some flaws because sometimes he's willing to take personal risks, and that's

not really nice, economically speaking, because maybe he's wasting a lot of money in not very important projects. Also, he's a bit aggressive, dominant, but this is a character. I mean, maybe he should be there for some reasons. And I also observed that there's a lack of the diversity, sometimes in this projects, because males are dominant in a lot of projects and for this reason a female perspective is missing. But in general, I think he is one of the people who really believes in innovation and dreaming of something new in terms of gigantic projects and I'm not always agreeing with him because I believe that he has also some borderline projects, like Neurolink, which is a brain computer interface that I brought to an ethics exam I had last year. And I went against his theory of having this neural link implanted in our heads to make everything more usable. I went against that idea and my thesis was the complete opposite. Because I think this aspect should be researched a lot more than what we have nowadays, meaning that right now we are not really ready for this type of innovation. Because in my thesis it was bit extreme. But in my thesis during that ethical exam regards the possibility of brain computer interfaces, in particular affective brain computer interfaces, to of course collect our brain data, but also to modify them. And that's unethical for me. I have a whole theory around that, but I think that's a bit too much for this podcast.

**Tomi:** Is it in Italian or English?

**Teresa:** It's in English actually.

**Tomi:** Perhaps if you can share it with me. I would like to check it because I'm super interested in Neurolink and I totally agree with your ethical concerns.

**Teresa:** Yes, of course. The Neurolink was just an example of affective brain computer interface. Just because now Musk and his team are creating Neurolink for people with disabilities. But if you look in the website, it's written that they would like to expand this idea to everyone. And that's a bit scary if you think about that. But yeah, I'll send uh my thesis about that. It's a bit drastic because I came to the point that if you have a brain computer interface and effective brain computer interface in your brain and this interface could actually modify your brain waves then everything that rotates around more moral choices breaks down. And it's a bit extreme, I know, but I wanted to make my point really strong.

**Tomi:** And you totally made it already. I mean now in this podcast, this has been amazing. And you are a total Cloud Reacher in my mind.

**Teresa:** Thank you so much.



**Tomi:** I mean we are safe. We have a safe future. If you and your peers are building the new future and new memories, new buildings, new cities. For all of us.

**Teresa:** Thank you so much.

**Tomi:** This has been an amazing conversation. Thank you so much for joining.

**Teresa:** Thank you for inviting me. I cannot wait to listen to it. I don't know if I have the courage to listen to my own voice.

**Tomi:** Yeah, but it's, you know, it's for listeners, so we don't have to. We can skip it, but others can, and I am sure about it, enjoy this conversation.

**Teresa:** Thanks so much for inviting me.

**Tomi:** Thank you and thank you everybody. This was it, see you next time. This was Cloud Reachers and Tom Kauppinen. Chao.

[Outro music]

[recording ends]