Participation in Gaming.
A podcast on accessibility, featuring Professor Dr. Adrian Hermann

Accessibility is clearly an issue of increasing importance. Lowered curbs, for example, will make it easier for moms and dads out with a stroller to get around in the city. That also applies to individuals who depend on a wheelchair for mobility. Voice command is another useful technology, which helps blind people, for example, use a smartphone. I can also use speech-to-text technology to dictate a text message, while driving a car, for example.

Thea Fabian:
Video game consoles, gaming… these things are associated with having fun, for most people. But to individuals who are blind or physically disabled they are not the same thing. The gaming industry ignored the needs of such individuals for a long time. Now, however, there are technologies that enable the inclusion of people with disabilities.
I am looking forward to a talk with Professor Adrian Hermann, a prominent researcher in this field. But we will also be speaking about accessibility and inclusion on a general level. Hi Professor Hermann, it's great to have this opportunity to speak with you.

Professor Dr. Adrian Hermann:
Hi, it's great to be here!

Thea Fabian:
I see you have brought some things along, which you have laid out here on the table. Would you just tell us a bit about all that?

Professor Dr. Adrian Hermann:
Gladly; I have been researching accessibility from a cultural studies standpoint for a while now. These items I have brought along concern accessible gaming, i.e. video gaming, and other everyday technologies. These items demonstrate how accessibility is not only a relevant topic in the medical field, but also in regard to everyday leisure-time technologies. So I have here a Microsoft Adaptive Controller for Xbox, and the accessible controller for Sony Playstation, which came out relatively recently—at the end of last year. And I have a few other things we may talk about later as we get into discussing accessibility generally.

Thea Fabian:
OK, let's talk about the controllers first. Great strides have been made in recent years in technologies designed to enable people with disabilities to use gaming consoles for video gaming. If you would, discuss these developments for us and tell us how the technology works.

Professor Dr. Adrian Hermann:
Making video gaming more accessible has been an existing concern for a long time, but mostly only on the part of specialized manufacturers and do-it-yourselfers interested in developing the technologies. Some people have just created their own setups allowing them to operate a console with one arm only, for example, or overcoming other mobility restrictions so they can play video games. Such solutions have always been found, but now people are getting official support, from Microsoft for example, which has brought out the

Microsoft Adaptive Controller. Manufactured and directly distributed by Microsoft, the controller makes it very easy to make my own setup, with my own settings configured to meet my personal needs. So I can connect it directly to my game console, in this case an Xbox. Most people will be familiar with game controllers like this, from Nintendo or Playstation, for example, which have various buttons and joysticks. But if I can't use both of my hands, for example, I will have trouble using it, so I need a different way. The Microsoft Adaptive Controller allows me to do precisely that, allowing me to customize the operating setup to suit my personal requirements.

Thea Fabian:
What are some of the possibilities?

Professor Dr. Adrian Hermann:
It's quite simple: for basically every button I have on the regular controller, i.e. the controller that comes in the package, this controller allows connecting a separate switch, joystick, button or whatever have you via jack, enabling me to use the functionality of that button. So I can build my own setup, and have different buttons for the various functions which I can place in such a way that I am able to reach them and hit them.
Some will use their shoulder, others their leg, knee, head or whatever. I can also connect more sophisticated accessibility devices, like a joystick operable by mouth, or a device allowing me to trigger a functionality by blowing, or other such movement. All of that is possible. And this adaptive controller is the link between my setup of input elements and the game console interfaces.

Thea Fabian:
That must mean a lot for the people who are now able to enjoy gaming like everybody else.

Professor Dr. Adrian Hermann:
What I find particularly important is how accessibility is an issue relevant to fun and leisure, which is an integral part of our lives. It is an important issue, and not just something that the government is obligated to take care of so individuals with disabilities can enjoy basic functions of citizenship. Like apply for a new passport and things like that. So it's going beyond life's necessities to encompass things that people simply enjoy doing. Accessibility is crucial for anyone dependent on barrier-free access—in this case access to video gaming.
It is of course a special situation when a person has loved video games all their life but then because of things like an accident, aging or life situation change become unable to play anymore. Accessible technologies allow me to keep doing this recreational activity that I really like and is one that I enjoy life.

Thea Fabian:
That is indeed how the people in the video I watched to prepare for this interview describe it. They were talking about a car racing game that blind people can play. I had certainly never heard of anything like that before. I saw that and was totally fascinated, thinking: "That is so amazing, how that person can drive the car around the track so expertly the whole time, without being able to see it?" Now how does that work?

Professor Dr. Adrian Hermann:

It works thanks to the input devices we just mentioned, on the one hand, which are a key part of the equation in making it possible. The other part is the software and how the game itself is designed, which too may have various accessibility configuration settings and options. It is thus a specific hardware-software setup that enables people to do such gaming.
Staying with the example of the car racing game, a range of possibilities are imaginable. For someone who can't see the screen or has limited vision, for example, they might theoretically get a certain stimulus they feel on their one hand when they are running off the track. Such pressure or vibration controllers connected to the system let the player know they are moving left or right. So this is a matter of the input hardware used. Then of course the software may offer an option of keeping the car on track, for example, so the player doesn't have to worry about that. The player can thus enjoy other aspects of playing the game while the software takes care of certain, more challenging aspects. These are some of the possibilities out there.

Thea Fabian:
The audio can be part of the gaming experience too, can't it?

Professor Dr. Adrian Hermann:
Oh indeed! All the possibilities we have today in other media contexts are available, like "talkback" screen reader technology—voice output for things that normally you can only see on screen. So any media options out there can conceivably be realized. The topic is thus of great interest in media studies, as it's ultimately about input, interfaces and interlocking media.

Thea Fabian:
In the video I also saw settings for color usage. Where do those come into play?

Professor Dr. Adrian Hermann:
Yes, well, settings that make it much easier for people with a particular kind of color blindness to do gaming have been around for a while, but the latest video games are offering more and more highly sophisticated features—especially games that are designed for accessibility. This often involves the controllers. Like in a game where the character's life energy is displayed, shown by a number of red hearts that are full or partially drained. Someone who has trouble registering that can just change the color scheme so they are able to see the color used. With their specific needs met, they are then able to play this game without problems.

Thea Fabian:
It really is tremendous what all is possible today, everything that is out there. But considering the aspect of affordability, what health insurers cover costs to purchase such technologies?

Professor Dr. Adrian Hermann:
As far as I am aware, there isn't much support from insurers, and that's a problem. It is a major step that game console manufacturers have started offering these new technologies, building accessibility into their products, which anybody can go out and buy. Accessibility is thus more available nowadays, and the prices have come down somewhat. Of course, special setups still cost a good deal of money for those who require custom buttons, switches, joysticks and so on, in addition to the controller itself. It can get quite, quite expensive

indeed, depending on what you need. All these things to my knowledge are not covered by health insurance, generally, just like the game consoles themselves, which are considered to be everyday technologies like computers and smartphones. These are not doctor-prescribable aids—not in Germany, at any rate. As our lives become more and more digitalized, these technologies are becoming more and more prevalent, be it gaming console, computer, smartphone or whatever. Of course when something needed for basic access to many things in society and in life is not covered by health insurance, it is an unfortunate situation.

Thea Fabian:
What do you think the future holds, what developments may be coming our way?

Professor Dr. Adrian Hermann:
It's hard to say of course, but regarding accessibility generally, there may be developments forthcoming in the legal framework, like the medical aids regulation, but I am unable to say a whole lot about it. Yet accessibility is clearly an issue of increasing importance, as reflected in laws already passed and the evolving legal framework. While it is difficult to anticipate the developments, we do see the European Disability Act and other legislative decisions being made in European law. The requirements under such EU laws are then implemented in German national law. Thanks to these laws there will be a much clearer legal situation as of the year 2025, so that businesses will have to pay more attention to accessibility issues. Exceptions will be possible through the year 2030 for special cases, but the basic difference will be that private enterprises will have to be more concerned with accessibility, whereas currently it is only public institutions where this is the case—universities, authorities, etc. Further improvements are thus likely, and of course ideally these will be quite substantial.

Thea Fabian:
OK, we have talked about how this issue means that some people will miss out on opportunities if we neglect to take steps to ensure their inclusion. But how important is accessibility within society as a whole? Thinking for example buildings, workplaces etc.—the ramifications for construction.

Professor Dr. Adrian Hermann:
I believe accessibility will be seen as an issue of much greater importance than it is today. Construction changes are the kind that we can all see right in front of us, such as stairs and other situations that pose a problem for handicapped individuals encounter in everyday life. During the pandemic, probably everyone became suddenly grateful for automatic door openers operable by foot or even one's knee, which were originally intended to reduce barriers for individuals with mobility restrictions. Such structural aspects of accessibility will undoubtedly become more of a focus in broader society, in Germany at any rate. That is my expectation, and we can only hope that that will be the case. And from my point of view as a scholar, it is interesting what you start to perceive once you start looking at the world from the lens of accessibility. That's when it gets intriguing, going beyond specific aspects—you start to see things you might not otherwise have.

Thea Fabian:
Yes I see, and these changes make life easier for people without disabilities too, don't they, not just people with disabilities, would you agree?

Professor Dr. Adrian Hermann:
Precisely, that's right. Seeing things through the lens of accessibility reveals in fact that the issue is actually important to everyone; how barrier-free solutions can actually benefit everyone, be it on campus or in relation to recreational activities, such as gaming. It's a multi-faceted issue that one can approach through different models. Ultimately however, what's important is that we realize how everyone can benefit from barrier-free concepts, as we may all end up needing and using them at some point in our lives. Lowered curbs, for example, will make it easier for moms and dads out with a stroller to get around in the city—to cite one situation. That also applies to individuals who depend on a wheelchair for mobility. Voice command is another useful technology: which helps blind people, for example, use a smartphone. But I can use voice input in my car as well, for example, if I have the technology installed, allowing me to dictate text messages, as an example of something that everyone can benefit from. Senior citizens in particular benefit in a society concerned with accessible living, and we will all be old at some point, having trouble with our eyesight, or stamina or other aspects of living—at some point we will be grateful for such things.

Thea Fabian:
Accessibility is relevant to us all in one way or another. But it's about more than just physical aspects of inclusion, isn't it? What about people who have ADHD or autism, for example?

Professor Dr. Adrian Hermann:
There too, we need to all see things from an accessibility standpoint at some point, as people with such disorders—nowadays we talk about "neurodiversity"—are particularly affected. Such individuals can benefit significantly in their private lives or at work from an environment designed for greater accessibility than is typically the case today, becoming enabled to live more productive, happier lives. In the workplace, for example, there is so much potential out there in my opinion, around things that most people are not even really aware of, not being affected by the situation ourselves. So I see a great need here, and it is truly interesting how looking at things through the lens of accessibility helps us reflect on ourselves. What things do we take for granted, not seeing any problem, thinking anybody can just do that? Structural accessibility is never a complicated matter. For example: a room accessible only by going up a few steps. If there is no way past these steps, the room is basically inaccessible for a person in a wheelchair. That much is clear and apparent to everyone. But an accessibility issue involved around neurodiversity would be whether the announced event, work meeting, etc. to be held in that room lasts for a specified period of time, without going over for the usual 2–25 minutes. Many would not see this as an accessibility issue right off, but to people with ADHD or autism, meeting duration can be a crucial issue, if they are to feel comfortable in a work context. So these considerations open up a very wide range of potential accessibility issues.

Thea Fabian:
Earlier you touched on how looking at the meta level, from a culture theory and philosophical standpoint, accessibility turns out to be much more than the few examples that usually come to mind. You just now pointed out how there is a lot more to the issue than people tend to think, but do any other areas of society come to mind, specific examples?

Professor Dr. Adrian Hermann:

My perspective on that has developed over time, through meeting people who work in the field. Including particularly my wife, who is now a business executive. It's about digital accessibility on the one hand, which means websites broadly speaking and web applications, while on the other it's about professional work contexts, i.e. working in an office for a large firm. When you have interactions with people working in this area, you start to adopt their perspective. And that very much led me to looking at the issue less from the standpoint of pragmatic implementation, which of course is very important, and more from a scholarly perspective, in line with my principal role at the University. Research and teaching are my primary responsibilities, and after that comes contributing to the University's institutional culture. And that's important too, of course. That means making accessibility reality, realizing a barrier-free campus where everyone has access to studying. It extends to all structures, including the web applications we work with every day, and I believe we at the University of Bonn will make numerous advances in accessibility over the next few years. So that is one area where we are concerned with pragmatic implementation. I am interested in accessibility from a research standpoint, meaning my point of inquiry is at a much more fundamental level. Accessibility is inherently an interdisciplinary topic suitable for our transdisciplinary research areas, within the humanities certainly but intersecting with engineering, medicine, computer science, sports science, psychology and all kinds of other fields. The core idea is that we humans are always structuring our access to the world in one highly concrete way or another, so in essence the questions always revolve around what is our relationship to accessibility, to our environment but also to ourselves and our fellow human beings. And what media conditions does that imply? What technical prerequisites? For we humans are creatures who are always employing techniques and technologies in special ways—whether pen or a smartphone. And you can always inquire into how accessibility is actually structured in a given situation. This really fundamental approach of looking at how philosophy and computer science come together in the implementation of assistive technologies is what interests me as a research focus, and where I have been developing projects, especially in the last few months.

Thea Fabian:
Listening to you one already gets a sense of your research vision, that broad cultural change, so to speak, really could yield solutions. Would you agree with that?

Professor Dr. Adrian Hermann:
What we need, in my opinion, are laboratories. I believe that is critical, for making a university more accessible or even barrier-free, particularly a very old institution like the University of Bonn, is really an enormous project when it comes to concretely executing on the objectives. Adopting a very broad understanding of accessibility could in fact be overwhelming to the institution if that has to be lived up to in implementation; I see that as an open question: how much is possibly too much. Because while obviously very important, at the same time it is clear that we don't have the luxury of starting over entirely from a tabula rasa, as if everything could be redone in a radical restructuring. That's where I see laboratories coming into play—which society is in need of in general, but are specifically needed at universities in particular. That is what I'm working toward, setting up labs—some physical labs at various locations, others being "labs" for experimentation in a metaphorical sense, like pilot projects. Degree programs, courses, event venues at the University… very specific campus contexts which we will endeavor to render as accessible as is possible. I think it's important to move on both fronts. My hope is that the University is slowly but surely

becoming more accessible, striving toward the goal of being a barrier-free institution. It is a long process, however, that will take time. It can't really be rushed through. There can't be the expectation that everything will immediately become 100% barrier-free, but defining the expectations to uphold a high standard is important. We do after all have very high standards regarding diversity, inclusion and accessibility in campus situations like courses and events. And that's important too in our pilot projects and laboratories, where we try things out and make accessibility a reality. There is a playful element involved, studying questions like "What specific factors make a course or event truly barrier-free? What things are actually needed? Are we even clear on that to begin with? Those are the kind of questions involved.

Thea Fabian:
Indeed, well thank you very much for talking with us, Professor Hermann, it was a pleasure hearing about the many different ideas and approaches.

Professor Dr. Adrian Hermann:
Thank you!

I talked with Professor Adrian Hermann about the significance of inclusion and participation as societal goals. Inclusion concerns people with physical disabilities, but also people representative of neurodiversity, and who may be socially or otherwise challenged in and outside the workplace—with keeping appointments, for example. Inclusion is becoming ever more important at our University. A number of advances toward the goal of being an accessible university will be forthcoming in the near future. Focusing on gaming, Professor Hermann discussed in detail the latest technologies available today to enable people with disabilities to use gaming consoles. These include mouth-operated game controllers and vibration functions enabling blind people to play car racing games by alerting them when they are leaving the track. It is a fascinating topic, where there is a lot of research yet to be done.