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IRA FLATOW, host:

This is TALK OF THE NATION: Science Friday. I'm Ira Flatow.

While you're busy in this world - going to work, getting the kids to school -millions of other people are going about their daily routines in virtual worlds. Virtual worlds are online communities. You use the Internet to log in to them, where people go shopping, they kill dragons, they catch a poetry reading, they might even listen to SCIENCE FRIDAY there. And there are a lot of worlds to pick from. There's "Second Life," "World of Warcraft." There are even digital realms geared for kids like "Barbie Girls."

You're virtual self, the person who lives in the digital community, is called an avatar. And you can make your avatar look just like anything you want to, from a human to a furry animal or to a way you wished you looked.

But don't think these virtual worlds are all fun and games. They can be very big money. Avatars have launched businesses such as clothing lines or contracting companies, and are making thousands, and in some cases, millions of real U.S. dollars. In "Second Life," over 400 universities have begun holding classes. IBM has business meetings there. There are even something like 40 virtual world concerts per night.

So this hour, we're going to be talking with one of the founders of "Second Life" for just about how real that world can become. And for some people -we'll talk about that, too - it has taken over their lives. Virtual worlds have in fact come to mirror the real world in so many ways that researchers are beginning to think that they can study avatar behavior online to better understand human behavior offline.

And here to tell us about the types of research and scientists are doing are -are thinking - are doing this. Dmitri Williams, he is assistant professor at the Annenberg School for Communications, where he studies video games and virtual communities. In fact, he teaches the USC's new Annenberg Program in Online Communities, which is the first program in the world of its kind. And he's also considered one of the founders of using virtual realms to study sociology. He joins us from our NPR studios in Los Angeles. Welcome.

Dr. DMITRI WILLIAMS (Annenberg Program in Online Communities, University of Southern California): Good morning, thanks for having me.

FLATOW: Good afternoon to you. Also with me is Cory Ondrejka, the chief technology officer of Linden Lab, the group that launched "Second Life." He joins us from W - from KQED in San Francisco.

Hi, Cory.

Mr. CORY ONDREJKA (Co-founder and Chief Technology Officer, Linden Lab): Hi, Ira. Thank you for having me.

FLATOW: You're welcome. And in - actually in the spirit of the show, SCIENCE FRIDAY today can be found in "Second Life" because as we speak - while we're talking here, we're actually in two worlds. If you could log on and find us, my avatar is there as Ira Flatly. Just look for the guy in the Sci Fri T-shirt and you'll find me. And just like we normally take calls from listeners, well, "Second Life" residents can message my avatar questions or comments about the show and I'll read them here on the air.

We're working on trying to get you a free T-shirt from the avatars - not working quite yet. We're still all new with this, but- we'll figure out how to do that. If you want to reach us the more conventional way our number is 1-800-989-8255, 1-800-989-TALK.

Dmitri, let me begin with you. Where did this idea of virtual worlds first come from? Just seems like they showed up one day.

Dr. WILLIAMS: Well, no. There have been networks of people talking with each other for a long time. And really, the only thing that's different now is that you're getting graphic representations of things. So, originally, things started as game spaces. If you wanted to trace their lineage back far enough, you could either take a look at the scientific networks that form the backbone of the Internet, or you can take a look at text-based game, kind of, spaces, which are called MUDs and MOOs. And then, really, in the '90s, people started to put some graphical flesh on these bones and suddenly making these spaces three-dimensional.

And they've just grown, really exploded in popularity since. We've seen the initial spaces would only have five, 10, 15, 20,000 people on them. And now, some of the more popular spaces, the headcounts are usually in the millions and in some cases bordering on the tens of millions, depending on what part of the world you're talking about.

FLATOW: Now, I know that people, years ago, used to share time playing games. "Warcraft," games like that, they would - they'd create little armies and take each other on. This has gone a step further now.

Dr. WILLIAMS: Well, sure. It's a question of scope and scale and whether when you reach a certain point - in scope and scale, things actually change fundamentally, because people have always been collaborating on things from long distance, and people have been able to play games with each other through the mail, and people have been doing chess games and what not for a long time.

But when you can do it electronically, then all of a sudden, you can do it remotely from other places and you can do it live. And then once the technology gets better, it's not just about a few people it's about many people. And so, rather than five people or 20 people, you're suddenly coordinating groups of 40 or 50 or 60 in single actions. And you might have hundreds or thousands of people nearby you in that virtual space. And so then you start talking about -rather than small groups and group dynamics, you start talking about communities and societies.

FLATOW: Yeah. And Cory, that's what you have in "Second Life." How did you develop this idea?

Mr. ONDREJKA: Well, "Second Life" got started about seven years ago now and the original idea was to build a large, connected space that people could go visit and create and collaborate in. But what we discovered early on in development is the piece that people really got into was the creative act itself, the idea that they could create and share their creations with each other, and really discovered that back in 2002. And so, most of "Second Life's" development since its launch in 2003 has been expanding not because - Dmitri really nailed it -this is all about how people communicate. And when you can create as part of the act of communicating, it really broadens your opportunities.

FLATOW: Give me an idea of some of the things that people are creating in these virtual worlds.

Mr. ONDREJKA: Oh, everything you can think of. From - there's from themselves, you talked about, you know, avatars in your lead, in, people like to create a representation of themselves and it varies from often idealized forms of themselves all the way to really fantastic representations.

But then, as you expand out, pretty much anything that would be part of human interactions or human, you know, connections starts becoming what they build. From houses to live in, dance clubs, places to go listen to music, the artifacts that fill those spaces. And it keeps on expanding outward all the way to the people who first created, you know, consulting or design firms within the "Second Life." And then as they prove to be successful in those activities, those forms themselves then branched into the real world and became companies in their own right.

FLATOW: So people are actually making the physical pieces that other people buy from them to create the real community.

Mr. ONDREJKA: That's absolutely right. Just like the Web, everything in "Second Life" is built by the residents themselves. The one big difference from the Web is that rather than tending to build things sort of offline, where you build them yourselves in isolation and then sort of upload them to the world, in "Second Life," virtually everything you create, you're actually creating while you're within the world. So it's sort of like you have you have a big set of really cool LEGOs to play with and you can get groups of people together from all over the world and actually create together.

FLATOW: One thing I noticed that is not created together are botanical things, you know, plants, trees and growing, you know, things like that.

Mr. ONDREJKA: Actually, they've been a few - interesting ecosystem. There's an active community of people who make better-looking plants than the ones that put in the system. So there's competition in that space as well, because I think anything that's potentially interesting or beautiful, people will spend time figuring out how to make really interesting ones, and they're either giving or selling to each other.

FLATOW: But do the plants grow?

Mr. ONDREJKA: Some of them do.

FLATOW: Yeah?

Mr. ONDREJKA: In fact, the original design for "Second Life" - and it's funny when we look back on this - was this idea of sort of an outdoor forest of some kind that people would go visit. And when we look back on it now, we're like, well, that doesn't actually sound all that interesting, but at that time we're really excited by it. And so fast forward to long after we'd launched and a user come in and actually built a full ecosystem with growing trees and animals and weather systems, and it done that all using the scripting language, so this is the computer code you can write to actually add behaviors in a world. And to this day, we don't know how exactly - how he did it because it was just amazing.

FLATOW: It's getting a life of its own.

Mr. ONDREJKA: Absolutely.

FLATOW: Dmitri, what do you think of that?

Dr. WILLIAMS: I think Cory is probably, aptly the high priest of user-generated content, which is kind of the fun buzzword in the game industry at the moment. And "Second Life" is probably the single best example of a space where users come in and make stuff.

But, by and large, most of these spaces are still fairly top-down driven. You have narratives where you follow the path. And the content of interest might be the other people, but they usually don't offer the users and the players authoring tools, with the exception of maybe some sort of avatar-building kind of things that pepping around kids.

So "Second Life" is kind of an interesting case study in and of itself and we're all watching with serious interest to make sure that they stay afloat, they do well, and see if they're the promise of things to come, where it's people making things rather than only companies making things.

FLATOW: Can you actually learn how people interact with one another in real life by watching how the avatars interact?

Dr. WILLIAMS: You can, absolutely. But there are certainly some pitfalls, and I'm sure we'll get into it. The most important thing is that you have to know whether or not the incentives for the people to behave a certain way and the assumptions about their behavior would, in fact, match those same assumptions offline.

And in many cases, yes, I'm pretty sure they will. But in other cases, it's an unknown. And it's something, as a scientist, you'd want to go through a validation process to make sure that if I study X in virtual space, then the fact will come out to be X in offline space.

In the online space, the rules, the very fabric of the space, is radically different. We don't have to obey physics. We don't have to obey morality. We don't always have to obey laws from the federal government or even from convention or cultural backgrounds, and things change radically.

So what people can do or are allowed to do or what are incented to do might change the way they behave in a way that may or may not mirror what happens offline, and it's just sort of a word to the wise for people who go into this space that you have to think through these issues really carefully.

FLATOW: Well, we have a large group of avatars collecting, and I spied on "Second Life." It's - my avatar is hanging out at Science School at - the coordinates are 128-128-0, and my avatar's name is Ira Flatley. And if you want to send us instant messages or come to Science School for a limited time offer, we might be able to give you a free T-shirt to wear on your avatar. Also, you can send us e-mail, right there. Ask the avatar, we'll try to answer those questions in addition to the questions that we have coming through the phone and the Internet. So this is an experiment for all of us to see how well this works here. And obviously, we're not the first to try it, are we, Dmitri?

Dr. WILLIAMS: No. There's a ton of research going on for the areas of management and organizational behavior, communication, my home field, social psychology, political science, public diplomacy and international relations, believe it or not are happening, economics, tax laws, social network analysis.

And then, probably the most single active group would be the educators, who have a very vibrant presence not only in "Second Life" as well - notably in "Second Life" but also elsewhere. And they're teaching and learning and thinking about everything you can think and come up with from language to art and design, and physics, and architecture, and you name it.

FLATOW: Our number - 1-800-989-8255 is our number. Also, you can reach us on the Web, e-mail also. You can reach us as an avatar in "Second Life." It's spelled Flatley, F-L-A-T-L-E-Y, Ira Flatley up there as an avatar. We're going to take a break, come back and talk lots more about "Second Life" and other virtual communities. Sherry Turkle is going to join us to talk about some of the ways that she views the sociology - I guess you might call it - of the online community. More of your questions, 1-800-989-8255. Stay with us. We'll be right back.

I'm Ira Flatow. This is TALK OF THE NATION: SCIENCE FRIDAY from NPR News.

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FLATOW: You're listening to TALK OF THE NATION: SCIENCE FRIDAY. I'm Ira Flatow.

We're talking this hour about virtual worlds with my guests, Dmitri Williams, assistant professor at the University of Southern California's Annenberg School for Communication. Also with me is Cory Ondrejka, chief technology officer of Linden Lab, the group that launched "Second Life." We have a "Second Life" avatar there. We have a space you can talk to Ira Flatley, my avatar. If you go over to the Science School, coordinates 128-128-0. That's spelled F-L-A-T-L-E-Y.

And also with me now talking about the growing success of virtual words. What does the avatar say about us? And why do we become so connected to it? People say that when they're online as their avatar they are ignored, it bothers them just as much as if they're ignored in real life. And then there's the question of should we even be spending time going to concerts with virtual friends in "Second Life" when we can be doing the same thing with real people on our first life?

To talk to us about some of the psychological and behavioral questions that arise with these online worlds is Sherry Turkle. She is the current director of MIT Initiative on Technology and Self, a center that focuses on the evolving connections between people and technology. Dr. Turkle received a joint doctorate in sociology and personality psychology from Harvard. She joins us from vacation on the Cape. Thank you for relaxing out there with us.

Dr. SHERRY TURKLE (Director, MIT Initiative on Technology and Self Program): It's my pleasure.

FLATOW: This world of avatars online, how do you view this? Are people escaping or are they joining in something?

Dr. TURKLE: Well, people are building and they're building to escape and they're building to join. I think one of the things that we have to learn about the virtual world is that it has - it is as diverse with as diverse psychologies behind people's motivations and what people can accomplish as the real world is.

The - I've been often quoted as saying that people are playing online, but very serious play, and I kind of stick by that. I mean, essentially, people are creating and building self, and it's - there's a playful quality to this. But they're also engaging in serious play because the virtual world can be an identity workshop for working on who you are.

FLATOW: There was a very interesting article, I think, in the Wall Street Journal a week or so ago about a gentleman who was getting married to his avatar…

Dr. TURKLE: Yes.

FLATOW: …while he was really still - just had been married in real life, and his real-life wife was very jealous.

Dr. TURKLE: Yes, people develop very strong attachments to people in virtual communities. And there is a long history, an over 20-year history, of people forming strong relationships, strong sexual relationships, of course, virtual sexual relationships and indeed wanting to legitimate those relationships to having marriage rituals online.

FLATOW: Why do we treat them like humans? Why do we get sad when our avatars are ignored or embarrassed or something silly happens? I mean…

Dr. TURKLE: Well, because the avatar - you have to kind of put yourself into this frame of mind, the avatar is an aspect of yourself that you are projecting out into virtual space. Now, it is not yourself, but it feels enough like you that you identify and care about its comings and goings, how it looks, how it presents itself to the world and how other people view it.

If someone is cruel to your avatar, there've been examples of the rape, online rape, where the person - well, what that means is that an avatar is attacked or violated without the consent of the avatar. And those experiences can be experience even bodily by the person, who, for all intents and purposes, is sitting at a computer typing.

FLATOW: You know, I play a game called "The Restaurant" that's put out by MIT, where you get to be waiter or a waitress in the restaurant. And a customer came in and sat down. And as I started to, you know, take his order, he got up and walked off with the cash register.

Dr. TURKLE: Yup.

FLATOW: And I really felt insulted.

Dr. TURKLE: That's right.

FLATOW: You know, I ran out in the street after him and got it back.

Dr. TURKLE: Right, because we project ourselves into these creations of ours. And this is both the seduction of these environments and why they are so powerful and seductive and evocative. But it's also the danger, in a way, of these environments because sometimes people need to kind of, you know, slap themselves on the wrist and remind themselves that this is, in a sense, quote, "only a game." And we're living a new kind of psychology where we're living on that border between what feels so real to us but it is after all virtual.

FLATOW: 1-800-989-8255 is our number. We're talking about the virtual world this hour. Let me get - let me take a question from the virtual world from "Second Life." It comes from Mediaman Malone(ph), who says, what is Linden Lab doing to increase the capabilities of the platform for education and professional use, issues of scale, physics, things like that? Cory?

Mr. ONDREJKA: So that's a great question, obviously, we view the first steps is to continue to make "Second Life" more and more open. You know, "Second Life" is used in so many different ways that when we think about how to expand it, we want to make the decisions about how to expand it in many ways customer-based, the residents themselves.

So that's part of why the clients, or what you use to actually connect to "Second Life" that you can just download for free from secondlife.com, is open sourced. You know, if it doesn't do something that you want it to do, you can actually get the source code and go play with that. As we go forward, we want to connect "Second Life" more and more to the Web.

And, you know, to - you know, contrast, I think, a little bit of what Sherry was talking about, I think that when you look at the connections, whether they're educators, whether it's businesses, or whether it's just you connecting with your friends to go listen to music, the connections that happen, whether it's through "Second Life" or other virtual worlds, are very much real connections between people.

And so the questions become how do you use this as a communication device? How do you use this like the telephone except more than the telephone you can go do all of these interesting things together? So one of the important pieces in that is how do we connect "Second Life" more and more to the Web, to the real world and allow the people who are using "Second Life" to expand it more and make it more what they need it to be.

FLATOW: Tara50(ph) on Second Life has a question for you, Dr. Turkle. Do you have a "Second Life" avatar?

Dr. TURKLE: Yes, I do.

FLATOW: Are you going to share that with us?

Dr. TURKLE: My name is Rachael Foboss(ph) and I think that I - I would just want to clarify what I mean when I talk about "Second Life" as not being the rest of life. I don't like to make the distinction between the virtual and the real because I think that, if you're spending so much time in virtual space, I mean, that is very real for you.

So I certainly wasn't saying that there isn't great consequence and great reality here. What I am saying is that when people go on "Second Life" and create a beautiful avatar - a beautifully dressed avatar, a wardrobe more elegant than they can have in the real life, a body more toned and perfect than they can have in real life - there's a certain kind of psychology to playing out this idealized aspect of yourself that we need to be attentive to.

It doesn't mean that part of you should not have the experiences you need and want on the Web, the information, the communication that you need and want on the Web. But I think that we also need to be attentive to the way in which people need spaces that psychoanalyst Erik Erikson called a moratorium space, a kind of time-out space where they can engage an identity play. And even though "Second Life" does much more than that, it also is that kind of space.

And that's an important part of the psychology of "Second Life" and all virtual world, that they give us a chance to try things out a little bit differently than life allowed us to try things out.

FLATOW: It sounds like a great tool that you are describing perhaps for a therapist.

Dr. TURKLE: Absolutely. One of the things that I felt very strongly about it have been on the kind of 20-year mission - and I think, I'm starting to be much more successful - is encouraging therapists, particularly therapists who work with children, adolescence, to use what people do in online world as grist for the mill for how they work with patients in the consulting rooms.

For a long time, therapists didn't want to do that. They said, oh, this is just fantasy, and I'd say, well, hold on a second. I mean, since when is just a fantasy, first of all, not something that therapists are supposed to be interested in. But more than that, you see someone really playing out the self that they want to explore. It's not always who they want to be. Sometimes, they can be exploring a dark side of themselves. It's not always an idealized self, but it is an aspect of self and it's a very, very powerful therapeutic tool.

FLATOW: 1-800-989-8255 was our number. Let's not ignore our old telephone technology. Hi Nicole in Pleasanton, California. Welcome to SCIENCE FRIDAY.

NICOLE (Caller): Yes. Hi. I'm calling because I don't do the virtual world, but I have three kids and one of the ones that I've seen most recently, my youngest, my daughter, she's 8 years old, and she bought this little stuffed animal at the store and with it came a registration. And you go online and you register, and you name your dog, comes up looking just like the one you bought. And you dress it and you do all kinds of things.

But then when your friend gets one, you can invite your friend's animal over. And you get together and you do things - you play games. And one thing I liked about it was before this, my daughter was - she wasn't really crazy about the computer. And I do think being comfortable with the computer is important. And she has become a lot more comfortable.

FLATOW: Hmm.

NICOLE: And my 10-year-old son was also on a similar type of thing and he would say to his friend, let's meet in 425 at 5 o'clock and we'll go play the game together. So, you know, as a mom of three kids with a really busy schedule, sometimes it's really convenient when your kid wants to play with his friends, but you don't have the practical time to do it. And when you do…

FLATOW: So it's like a play date online.

NICOLE: Exactly.

FLATOW: Yeah.

NICOLE: And they're happy. It's not, I mean, it's not the same obviously as having a friend over, but it's the next best thing, really.

FLATOW: Let me get two comments, from Sherry and Dmitri. Sherry?

Dr. TURKLE: Well, I think this is a wonderful example of how virtual life can be a stepping-stone for sociability, I mean, it sounds that this caller's children had plenty of social capacity before they started out. But some children are very shy and virtual life can really be a way to put one toe in the water and move towards greater sociability.

It's also, in this case, a step towards a kind of computer literacy or kind of computer fluency. And both of those are good. I would also say that parents have to watch out for balance. That this mother sounds very savvy and that she absolutely is glad to have her children online and playing with friends when that's not going to be available to them otherwise.

But I'm sure that if the balance started to shift towards her children preferring to meet their friends only online and shying away from play dates, you know, her alarm system would go off and she would start to say, hey, time to schedule some play date.

And I think that's my basic kind of attitude towards the virtual and the physical real, is that the point is to use the virtual to enhance the real and to use, as I think Linden Lab is so elegantly trying to do, is to take what we know about what's powerful in the physical and bring it into virtual.

FLATOW: Thanks for calling, Nicole.

NICOLE: All right, thank you.

Dr. WILLIAMS: Could I chime on that?

FLATOW: Sure, please.

Dr. WILLIAMS: So we actually do have some research on this topic to find out what the social effects are when someone enters this space. It's not usually focused on children because doing research with children is notoriously difficult for a lot of ethical reasons.

But it's important to know that not all of the interactions in these spaces are with new people. And about 50, 60 percent of relationships that are existing in these spaces are with preexisting friends.

So what you find as a trend that we found and a lot of early on in that research, which is that this is a relationship maintenance tool for relationships that already existed beforehand.

And in some way, it may change that relationship that moves online and goes through this new medium, but is not necessarily the new people. Now, you do have new people and you do have new time and what we do is we do experimental designs to find out what exactly has been displaced.

And then you can make a judgment as to whether the thing that was displaced is better or worse - depending on your own thinking - than the thing that comes in. And there's a wide range of interpretation here for some things are good that are being replaced and some things are bad that are being replaced to something better.

So it's not a simple, it's good or it's bad. And then, my last comment - and I have to, by the way, say I completely agree with Professor Turkle who's been in front of this issue for a long time and who's work I assign all my students religiously - my advice that I give whenever I do conversations with parents involving video games, which is a very active and very contentious area of research, is that parents should not only keep an eye on what their kids are doing, but they should play the games with them. They should spend the time in the space, so that they aren't just looking over the shoulder now and then and saying, oh, there's a penguin there. That looks fairly harmless. They really need to get involved.

FLATOW: We're talking about virtual reality this hour on TALK OF THE NATION: SCIENCE FRIDAY from NPR News, with this new social community. Is there any way to protect against the child molester now in this new world? Or are they safer here than they would be on some place, you know, maybe a different kind of just an I.M. chat place? Do you think about this problem?

Dr. WILLIAMS: Here's a hot potato. I'm sure everybody is going to want to weigh on this. My only two cents are going to be that online space is not perfectly safe. It's also not perfectly awful. And that almost always when we have initial reactions to these new spaces and new technologies, they want to bring about what we're worried about with things offline and my not having to do with what's going on the online space.

And, in fact, many of the initial fears about online cyber predators and things made for great copy and had great sort of, you know, man-bites-dog value and, you know, they're enough to get people worried. But they're almost always debunked and then the debunking doesn't wound up getting as much headline space. So it's just the, you know, take it with a degree of caution that these things aren't rampant.

FLATOW: Sherry, any comment on that?

Dr. TURKLE: I think that the molestation issues are less serious in some ways than really trying to figure out what the balance is between experiences for children between the "virtual and real" end quote. What others call real - what I called rest of life. I don't like RL. I like ROL. Because I have somewhat different feelings about children and adults in terms of what they need.

And when you say - the grown up makes a decision about the pleasures of meeting preexisting friends, preexisting connections in "Second Life," and building a house and building a business, I mean, there's a sense in which there's a grown-up decision based on a grown-up repertoire of possibilities that's open to them.

Children really need certain developmental experiences, and some of those, I think, can only be found on the playground in the kind of rough-and-tumble, face-to-face, body-to-body competition with other kids. And, I'm actually less concerned. And yet, these environments are so seductive because they do, as the woman - as the mother who called in pointed out, are increasingly environments that bridge the physical and the virtual.

And more and more kids are on sites that relate to the physical doll they have in front them. But they're not playing with their physical doll with the neighbor who's come over to play where they have to worry about making a snack and how to share it and how to, you know, kind of place their bodies in space and work on facial gestures and how we kind of blew it with other people. They're doing it in virtual reality.

And I actually think that, although I'm of course, concerned with the molestation that we've got to also really focus on this balance question for kids.

FLATOW: All right, we're going to take a little break. Come back to talk about lots more and add another element to the mix. So stay with us, we'll be right back.

I'm Ira Flatow, this is TALK OF THE NATION: SCIENCE FRIDAY from NPR News.

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This hour, we're talking about virtual worlds with Dmitri Williams, assistant professor at the University of Southern California's Annenberg School for Communication. Cory Ondrejka who is the chief technology officer at Linden Lab, the group that launched Second Life. Sherry Turkle, director of the MIT Initiative on Technology and Self, author of "Evocative Objects: The Things That We Think With."

And we've been talking with some of the ways researchers are using virtual worlds to study humans. And we have a virtual world avatar in "Second Life." If you want to rub elbows with Ira Flatley, my - F-L-A-T-L-E-Y - my virtual world avatar in "Second Life" and maybe get a free T-shirt for your avatar, you can find it hanging out at Science School there. And it coordinates our 128-128-0.

As I say, we're talking about the ways that researchers are using virtual worlds to study humans. But what about using virtual worlds to understand diseases? There was a recent paper in the British medical journal, The Lancet, that suggests we should unleash virtual epidemics in a virtual neighborhood near you, so that we can help understand the nature of epidemics and how they spread and how people react to them.

And here to discuss the paper is Eric Lofgren, one of the lead authors. He's an epidemiology PhD student at the University of North Carolina at Chapel Hill. And the future Dr. Lofgren is here to talk with us. Hi, Eric.

Mr. ERIC LOFGREN (PhD Epidemiology Candidate, University of North Carolina): Hi, pleasure to be here.

FLATOW: Tell us what is your purpose here? You want to be able to unleash an epidemic?

Mr. LOFGREN: The idea would be to release a virtual epidemic on one of these virtual worlds in order to assess some of the assumptions we've made in computer models about epidemics in the real world, check some of our assumptions, see if the changes we make there - based on human behavior rather than disease behavior - can change the way an epidemic spreads, should one actually occur.

FLATOW: Was one actually ever unleashed in virtual world?

Mr. LOFGREN: There was one that was released unintentionally on 2005 with the "World of Warcraft" game. There was a disease in the game plot that was accidentally, through programming errors, made into a full-blown epidemic.

FLATOW: Mm-hmm. And you think that we can learn how people would really react to an epidemic - a bad one - and learn how we might be able to combat it?

Mr. LOFGREN: We saw some interesting things with the epidemic in the "World of Warcraft." A lot of people had very altruistic behaviors, which surprised us, and a lot of people also had surprising reactions in the opposite way. They began to take greater risks assuming they wouldn't have the disease, broke some quarantine measures the developers put in place to try to stop the disease.

And so we think that if we began a kind of deliberate study of these virtual epidemics and looked at human behavior and got the proper incentive and risk mechanisms in place then we could see interesting reactions with humans that could yield insights into how we might react in the events of an actual epidemic.

FLATOW: Cory Ondrejka, chief technology officer at Linden Lab, do you think you could unleash an epidemic in "Second Life"?

Mr. ONDREJKA: Sure. I mean, residents have already done that and tried to do that many times. One of the things that make "Second Life" so unique is that the residents have access to being able to write computer code within the world. It's not the only way to create within the world, but it's a way to add behavior.

And so if folks wanted to make objects or information that propagated virally within "Second Life," that's certainly within the capabilities of scripting language sometimes unfortunately. But, you know, the idea is that it's important that people have, you know, maximal freedom to create within "Second Life." And so what comes of that is some opportunities that are pretty interesting.

So unlike the game world, it would really have to decide to have this into the space if a research wanted to create a space in "Second Life" to model viral propagation or create systems within "Second Life" to model it within people, they could certainly do that.

FLATOW: And you could model a vaccine, I guess, too.

Mr. ONDREJKA: Absolutely.

FLATOW: Eric, now I understood - I thought I heard that players in that epidemic began purposely infecting one another, is that right?

Mr. LOFGREN: There was some purposeful spread of the disease. People would get curious, see the disease, see its effects and then feel the need to share that with others, whether voluntarily or not. Part of the problem with it was that these epidemics took place in very crowded spaces within the game so that people could be very disruptive, very easily, simply by walking to the places where people normally would congregate which was no more than a few minutes away from where the diseases were spreading.

So we did see some of that, that does also exist in the real world unfortunately, occasionally. But what we saw - the most of was interesting concerns with people's assessments of risk and that can manifest itself in the real world with things like, oh, I'm not that sick, I can go to work, and you proceed to give your entire office the flu. We found a lot of behavior that indicated that people cannot properly assess the risk to themselves or that are willing to that risk anyway in order to experience and see the virtual epidemic taking place.

FLATOW: Let me ask all of you, Dr. Williams you can chime in, Sherry - why would people want to get - so why would they want to go to "Second Life," for example, or any virtual community and want to get sick and die from an epidemic? I mean, is that part of the game? That's not why they're - aren't they there to have fun?

Dr. TURKLE: Well, I think that that the word curiosity was used and I think that that was the idea that there was something - in this particular case, the idea that there was something new, that there was something exotic and novel and people kind of couldn't believe it, people wanted to participate. And I think that that's where we have to keep in mind when we use the virtual world to study the physical real that we behave very differently or may be likely to behave very differently when we only have our one fragile body to play with. And there, when we have polio epidemics, you saw people not wanting to participate in the novelty, but you saw terrified mothers fleeing the cities, locking their children up. You saw other kinds of behavior when people really are in a situation where they're afraid for their children's lives.

So again, I felt that the paper in Lancet was absolutely stunning and fascinating. But what we're learning, it seems to me, number one from that paper is what are social lives in virtual worlds are going to be, not necessarily how that would translate into dealing with our fragile bodies in the physical world.

Mr. ONDREJKA: The challenges for experimentalists is for control, because you're talking about commercial systems versus a system where you create everything from the ground up. So there's a child-oriented site, a game called "Whyville" by a researcher named Yasmin Kafai at UCLA, where she did controlled experiments and talked about information flows and learning and avoiding plagues and diseases by giving kids something called a Whypox, and it was built into the game.

So that addresses the how you get them to do it. They're playing a game and then this other thing happened that it became part of the overarching plot, and the kids liked it and they wound up learning about infectious diseases. But that's an expensive proposition to make a game from scratch, and the best-case scenario is one you can do that, but it requires a lot of savvy. And the tools - even though there are systems like Multiverse out there, are still, you know, rudimentary - are getting better. You can go into "Second Life" or you can take the commercial route and try to get a partner with one of these large companies.

But so far, only Sony Online Entertainment has really shown a willingness to work with the research community - or at least among the large developers - to do things that aren't necessarily experimental, but give researchers access to data and thinking about these things. So it really comes down to an issue of control because you want to control information flows, what happens, the timing of events, who's in those spaces, and it's all about controls that you can rule everything out and test one item at a time in a truly experimental fashion.

Dr. TURKLE: I guess, I wanted to make a distinction between learning about game environments in which we'd learn about viral infection, which, of course, is like Yasmin's system did so brilliantly and how people - modeling, how people behave when they think their lives are in danger, which is what I thought that Lancet article began to point towards.

Mr. ONDREJKA: Yeah, I agree.

FLATOW: How do you…

Dr. WILLIAMS: Another…

FLATOW: I'm sorry. Go ahead.

Dr. WILLIAMS: Another aspect of why people would want to get sick in these because, you know, you have people who are playing these games or collaborating virtually. And why would they want to get a disease - diseases are kind of a pain in real life, is to recognize - and especially in a lot of the games that have come out now - you have settings where diseases are a very prominent aspect of the plot.

And so one of the things we could do in the future if we're trying to model these virtual diseases is to sit down and make sure they fit in a coherent view of the universe so that players rather than simply saying, oh my gosh, I have this disease, and that being an interruption of the game, it becomes part of the game itself.

FLATOW: Could you possibly see people from other games bringing their technology where their ideas, for example, "The World of Warcraft" people coming over to "Second Life" and deciding to create gangs of their own that go out and attack other people?

Mr. ONDREJKA: Of course, we've already seen, not the creating-gangster-attack-other-people, but guilds and who are preparing for raids in "World of Warcraft" when you reach very high level the predominant activity, as Dmitri alluded to at the beginning was large groups coordinating for very, very complex activities.

And one of the things we've seen is those guilds moving into "Second Life" to use "Second Life" as a place to plan out their activities, to plan out their raids. And then, that group then moves back at "The World of Warcraft," does the raid, and comes back to "Second Life" to talk about it.

And I think as we go forward, we're going to see more and more opportunity to move content-identity avatars between these spaces, you know, especially with "Second Life" being open-sourced on the client side, there's a lot of opportunity to do that and we're trying to work on more of that. It's going to be interesting to see which of the game worlds, if any, are open to that because the game worlds aren't necessarily as interested and moving identity and content between.

But like we're talking about earlier, it's very important for "Second Life" to interconnect as much as possible with all these other places.

FLATOW: Let me go to the phones. Craig(ph) in Cleveland. Hi, welcome to SCIENCE FRIDAY.

CRAIG (Caller): I think.

FLATOW: Hi there.

CRAIG: You can hear me?

FLATOW: Yes. Go ahead.

CRAIG: Yes. Yeah, I just want to talk about because, you know, I'm 21 years old - so I kind of, I came up playing, you know, and then I went a lot of the RPGs and some of the - a lot of that - those things are just starting to come out, you know, in any way that was, you know, in a big way.

And I regret it at this point that I did spend, you know, some of my youth doing that, because like now, you know, I'm a musician and I look at this and it's sad to me because I think there's so many people who are still creative that, I mean, you'd see the creativity that's going out on these places.

But it's, you know, so much of art and things like that are fundamentally physical things that you have to do in the physical world. And I think that in that sense, it's diluting and diminishing the amount of vital art sometimes in the real world.

FLATOW: Let me just remind everybody this is It's TALK OF THE NATION: SCIENCE FRIDAY from NPR News. Sherry, that goes back to what you're saying about finding the balance, perhaps?

Ms. TURKLE: Yes. I mean, I think that there you hear somebody who put it his - paid his dues, put in his time. I'm sure he got some important things out of it. But at the end of the day, he's going to cast his lot with the kind of art he can do in the physical.

I have parallel concerns having to do with politics. There's an enormous amount of organizing, I mean, these virtual worlds are work - to run a guild, to run a community, to run a business, to run - I mean, this is hard work in a lot of organization and a lot of political skill goes into making a good virtual life. And I guess I'm concerned that the young people who are willing to spend that kind of organizing time and political skills-making, bring those skills back out to addressing the problems in the physical real in the political situation that we face in this country and in the world.

And I've done several studies with people who self-identify as being politically active in cyberspace by which they mean that they're very involved in the politics of virtual world, who proudly say they don't vote. And their reasons have to do with feeling as though they're more potent - that is they're more effective in their virtual lives than in their real world lives.

And I think that that, too, is a danger that - I really like the model where we take what we learn in the virtual and we bring it back to the physical. I really am nervous about a model where we spend our emotional and social capital solely in the virtual.

Mr. ONDREJKA: Well, although I think the music on - I think the music example is actually really germane, because when you think about being a young, budding musician, it's all about how do you get your music out there, how do you get a community interested in your music, how do you coordinate between other musicians.

And I think, you know, while there are certainly balance - and I think Sherry is exactly right to talk about that. When you think about the opportunities that the virtual world and technology offers for a musician in, you know, Rio de Janeiro to be playing to a club that has people from 20 countries listening in it. And you think about how impossible that would be to do cheaply in the real world, and I think that it's important for us to really look at the opportunity side of the equation when we're having these kinds of discussions as well.

Dr. WILLIAMS: You know, we do have also some experimental data on what happens when people civically across large patterns. I did a study about four or five years ago now, where we had 800 people - 400 playing a game, 400 are not, from the start. And I actually found slight uptakes in civic activity as a result of having played the game. People were more likely to write their elected officials, more likely to submit articles to a newspaper or editorial to newspaper, and I was frankly surprised by that.

At the same time, really what they gave up was their entertainment television and sports and a lot of non-news media consumption. They just kept reading the paper and kept watching TV news and state-abrasive things, which was very heartening. I was expecting the opposite. But what we do find on the negative side is that people tend to withdraw from - not their close friends, but their more distant friends.

And again, here's this issue of displacement as a better or worse than the thing that you gave up. And on the positive side, the people you meet are probably going to be less like you than the people they are replacing. And in society where we want to foster diversity and want to have people mixed and not segment and stay in hermetically sealed suburbs where they don't see people like them, that's only to the good.

When it's bad is when it gets in the problems like Sherry rings up for us, a question of balance. They might not be getting the kind of social-emotional they might have gotten from the people they replaced.

FLATOW: Well, we've run out of time everyone. I want to end with one little note from "Second Life," one avatar, Jumbo Little Thing(ph). Jumbo Little Thing says you might also think of the role of "Second Life" playing in the lives of the handicapped, something we can't get into, but something that is so obviously we can talk about. Thank you all for taking time to be with me.

Dmitri Williams, assistant professor, University of Southern California's Annenberg School for communication. Cory Ondrejka, chief technology officer at Linden Lab, the group that launched "Second Life." Sherry Turkle, director of the MIT Initiative on Technology and Self and also author of "Evocative Objects: The Things That We Think With."