

Oklahoma Innovations Radio Show

Air Date: September 6, 2009

Guests: **Ranji Vaidyanathan** and **Daniel Tilley**, Oklahoma Inventors Assistance Service

[Music]

>> From the OCAST Radio Network, this is *Oklahoma Innovations*, a weekly science and technology radio magazine brought to you as a service of OCAST, the Oklahoma Center for the Advancement of Science and Technology. OCAST is the state's only agency whose sole focus is technology, its development, transfer, and commercialization. OCAST mission is to identify and fund promising research in technologies that allow Oklahoma to compete in a global market economy from our own backyard. This program features some of the state's most gifted and talented scientists, inventors, entrepreneurs, manufacturers, and business leaders who all have one common goal, developing technology-based economic growth for all Oklahomans. Now here are your hosts, Gary Owen and Steve Paris.

>> This is the program that Steve and I enjoy doing every weekend, because it's fun, it's educational, sometimes entertaining between we, who try to be comedians.

>> Exactly. And sometimes we make it, sometimes we fail.

>> Sometimes, yeah, we have egg on our face, don't we?

>> Yeah, but you know what? We have a loyal listening audience out there all over the state. We're on KRMG in Tulsa and KTOK in Oklahoma City. And Cameron University picks us up down in Lawton, Oklahoma and booms us out to several of their stations, even as far away as Woodward, Oklahoma.

>> That's right. Or as far south as Wichita Falls, Texas.

>> Exactly. So we'd like to welcome all our friends from Texas.

>> We appreciate all of our affiliates, our listeners who listen to our affiliates, because this is one of those shows that it's unique, it's different.

>> Yeah. Let me run down that list real quick.

>> Oh, you got the list there.

>> I do. KCCU out of Cameron University.

>> That's right.

>> And Altus, Ardmore, Chickasha, Clinton, Duncan, Lawton, Fort Sill. And, you know, we've recently added Woodward, and, of course, Wichita Falls, Texas, as you mentioned. In addition to our two stations, our flagship stations in Tulsa and Oklahoma City.

>> That's on 740 AM.

>> That's right.

>> And they have now an FM. And then, of course, which they simulcast every week. And then, of course, we have our flagship station in Oklahoma City, News Radio 1000 KTOK. So we're delighted. Hey, this week we have a good friend of ours who hasn't been on our show in a while, Mr. John Hatfield, Dr. John Hatfield, I guess we could call him.

>> That's exactly right.

>> And his wife, Marie, is not going to be with us, but we're going to talk about Cognitive Systems Teletherapy.

>> That's exactly right. We wish Marie was here. But hey, we relish the fact that John came in to see us. You've been on several times. You have a unique technology that we're going to talk more about. But we've got a few pieces of business we need to take care of first, John.

>> Sounds good.

>> OK, Gary.

>> Now, what is--we have a calendar event we want to tell our listeners. And this is for those of you who are interested in attending the Oklahoma Alliance for Manufacturing Excellence, we've got a conference coming up, right?

>> Yes, and, you know, they changed their name just not too long ago. It's the Oklahoma Manufacturing Alliance now. They shook it up a little bit.

>> Of course they did. They did that to trip me up.

>> They did. Because for years, we've been calling it the other name. But at any rate, I've had to relearn that too. September 22nd, Doubletree Hotel at Warren Place in Tulsa. You have the Oklahoma Manufacturing Alliance Conference on manufacturing. And they're going to feature Ed W. Hill, Edward Hill, distinguished author, economic development expert, National Chairman of the Advisory Committee for the Manufacturing Extension Partnership. Also Steve Hendrickson, Director of Strategic Planning, Communications and Government Relations for Boeing Commercial Airplanes. They have a presence in Oklahoma, by the way. And they're going to have workshops on exporting, lean manufacturing, innovation of marketing, tax incentives, management plans, six sigma, which is one of the buzz words that is used in the manufacturing industry, sponsored by, in addition to the Oklahoma Manufacturing Alliance, the Oklahoma Department of Commerce. And if you want to register, go online at www.okalliance.com. It's \$95 per person. That includes lunch. So if you're a manufacturer or interested in meeting some of the manufacturers, hearing about the issues that they have to deal with and need to learn about, well, this is the meeting for you.

>> And we'll be doing a broadcast from there. So that will be fun. We always have interesting guests who come on the show at that time.

>> Exactly.

>> And what about--anything else we need to know about, as far as OCAST projects going on? You haven't talked about that in a couple of weeks. I know there's some new things going on.

>> Oh, there are a lot of good things going on. And when you talk about OCAST projects, we're receiving all kinds of applications for the intern partnership program. We talk about that program a lot. That's one of our very successful programs.

>> Tell the audience what that is for people who are not quite sure.

>> R&D intern partnerships. In the last 10, 11 years, we've had more than 500 technically trained, college and university students who have interned with private sector companies. We require three things. We require a private sector company. Or it could be a university. We require

that that company pay half of that intern's money, the money they're being paid to do what they do. We also require a faculty monitor, somebody who is a college professor who is working with that student to make sure that the training part of the intern activity is underway and that we don't want these young people taking out the trash. They were trained to do things other than paint the building and taking out the trash. Not that those are dishonorable jobs. It's just that we want them to be working in areas of where they've been trained in technology so that they can continue. And you know, we have a pretty good record of several of those students who wind up right now have become Chief Operating Officers or Chief Financial Officers or any number of positions, high-ranking positions. And some of them are even running their own companies or running the companies that they used to work for. So that's our main goal is to keep these students, these highly trained innovation students in Oklahoma.

>> That's right.

>> You bet.

>> We want them to stay here.

>> Keeps the economy flowing.

>> Exactly. Working for Oklahoma companies.

>> In science and technology news, folks living along the east coast or perhaps if you visited the east coast and were wondering about the unusual high water early this summer, that was thanks to a change in the wind and current flow. The National Oceanic and Atmospheric Administration said this past week that higher than normal sea levels were caused by persistent winds from the northeast, pushing water towards shore and a weakening of the Florida current that feeds water into the Gulf Stream. In medical news this week, this is kind of a weird story. You may not like this. I hope you're not eating breakfast right now. But I want to bring this along to you because--

>> I'm getting sick already.

>> Well, it's promising. It's really unusually promising. Listen to this. Repulsive little blood-sucking parasites known as the tick could yield a future cure for cancers.

>> Really?

>> Of the skin, liver and pancreas. This, according to Brazilian research. They've just recently discovered this. They've identified a protein in the saliva of a common South American tick that apparently reduces and can even eradicate cancerous cells, while leaving healthy cells alone. Listen to this. This is a radical innovation, according to these molecular biologists in Brazil. They say the component of the saliva of this tick could be the cure for cancer. One scientist said she had stumbled onto the properties of the protein and say the results have been more than promising. This one scientist said, if I treat every day for 14 days an animal's tumor, and this we're talking about lab mice now, a small tumor, this tumor doesn't develop. It even regresses. The tumor mass shrinks. If I treat for 42 days, you totally eliminate the tumor, producing a medicine from the find that will require years of clinical tests and a significant financial investment, which Brazil is geared to provide. Again, could show promise for cancer.

>> Gives me a whole different appreciation for ticks.

>> I'm telling you. Well, you know, there's a lot of talk about the chilly weather and the flu, of course the swine flu issue.

>> And we want to call that H1N1.

>> H1N1. They're still labeling it that. I don't know why.

>> We don't want our pig farmers to be offended by that.

>> That's true, that's true.

>> But what they are saying, good news here, is that the World Health Organization predicts that within two years, nearly 1/3 of the world's population will have caught it. But here is the hopeful news. With no vaccine. Winter is ending and the southern atmosphere, without as much havoc as doctors had feared. They're saying a heavy season that started early, but not an overwhelming one, the strain that doctors call the 2009 H1N1 flu, Steve said, isn't any deadlier than typical winter flu, so far. Most people recover without treatment. Many become only mildly ill. Now, here is the kicker. The real shock of this flu is that infections are 20 times more common in the 5 to 24-year-old age group than in people over 65. It appears the older generation appears to have some resistance, probably because of exposure decades ago to viruses similar to this new one. Isn't that interesting?

>> Yes. Wow.

>> And one final thing. Exercise, people. Scientists have found by research here that it is even better than angioplasty for some patients to get out there and exercise. The studies have shown heart patients benefit from exercise and some have even shown it works better than surgical procedures.

>> I guess that would depend on where you are in the process.

>> Probably so. Anyway, in 2004, they found that nearly 90% of heart patients who rode bikes regularly were free of heart problems one year after they started their exercise regiment. Among patients who had an angioplasty instead, only 70% were problem-free after a year. So there you are. They tell us exercise and watch your diet. Steve has our innovations in history. One big story this week.

>> One big story. No, there's two. Thank you, Gary. On September 7th, in 1927, an American television pioneer, Philo T. Farnsworth, he was 21 at the time, succeeded in transmitting an image through purely electronic means by using a device called an image dissector. When Philo T. Farnsworth was 13, he envisioned a contraption that would receive an image transmitted from a remote location. That would be called a television. And Farnsworth submitted a patent in January of '27 when he was 19 and began building and testing his invention that summer. He used an image dissector, which was the first television camera tube, to convert the image into a current, in an image oscillite, in our picture tube to receive it. On this day, his tests were fruit when the simple image of a straight line was placed between the image dissector and a carbon arc lamp. It showed up clearly on the receiver in another room. The New York World's Fair showcased the television in April of 1939. And soon afterward, the first televisions went on sale to the public.

>> Wow.

>> That's where it all began. And the US F-22 Raptor stealth fighter took its first flight September 7th, 1997 from Dobbins Air Reserve Base north of Atlanta, Georgia. The plane was estimated to cost \$100 million. And we helped pay for that. And that is our innovations in history for this week, Gary.

>> You had to say that. And you're going to pay for it.

>> I want everybody to participate now.

>> We have a little over a minute before we go to the break. And delighted to have Dr. John Hatfield. Now, this gentleman, he's got some cool stuff over the years. He's been working with cognitive systems that help people who have had brain injuries, be they accidental, be they medical issues, and helping people kind of get back into, I guess it's kind of what you call a cognitive rehab kind of process?

>> It's called cognitive rehab. Also cognitive development for children and even adults who haven't been able to utilize all of their faculties of thinking fast and quickly and producing sound information. So adult attention deficits. A lot of people have that. Learning disabilities among the children. We have even worked with Down Syndrome children.

>> Really?

>> And adults, by the way, going from like 49 to 72, I think.

>> All right, we're going to take a break. We'll come back and learn more about Dr. Hatfield and his innovations when we return on *Oklahoma Innovations*.

[Music]

>> As you drive across Oklahoma, you can see thousands of gas wells sprinkled throughout the countryside. Many of these wells don't produce enough natural gas to justify pipelines. But without that access, thousands of well sites are abandoned. With the support of the Oklahoma Center for the Advancement of Science and Technology, one company is creating a portable device transported on a flatbed truck to process natural gas at well sites. This technology optimizes the amount of gas that can be captured and releases no byproducts into the atmosphere. This idea provides new opportunities through small oil and gas producers, while bringing us one step closer to energy independence. Supporting innovation, that's what OCAST is all about. OCAST is looking for small business owners serious about investigating new products, services and processes. For more information, call OCAST toll free at 866-265-2215 or visit their website at ocast.ok.gov, investing in research and development, it pumps new life into Oklahoma's economy.

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>> You're listening to *Oklahoma Innovations* with Gary Owen and Steve Paris on the OCAST Radio Network.

>> Dr. John Hatfield is our guest. And we're going to talk about some cognitive innovations. These are--this is interesting stuff. First of all, John, let's talk about you. And give our audience--because we have new listeners now who may have not heard you. And those who have been listening to the program over the 14 years we've been doing this program probably recognize your voice and recall some of your technologies. But kind of bring us up to snuff of who you are and what you do.

>> Well, I returned to Oklahoma back in 1979 to work on my doctorate at OU in adult and community education, with an emphasis on adult or learning disabilities. And I have a lifetime teacher's license of Indiana. And so after so-called retirement, I was too young to retire, and my wife, Marie, is an RN, and has been a director of nurses in rehab and so forth throughout the state

for some 50-some years. And so she said, hey, hey, you've got to do something. You've got too much knowledge, too much experience, you've worked with state departments at local levels and regional levels. And here is what we need. We are sending people home from places like Brookhaven Rehab up in Tulsa. And they're not ready to go home. They have not developed the independent living skills adequately. And so they just go home and veg. And so that's where the idea of being able to connect them through the internet with a cognitive therapy type of a program, which would continue the rehab and get that brain developed, get the toning of their hands from strokes opened up. Everything is brain-based.

>> Yes.

>>> And so even visual neglect and so forth from accidents can rewire itself maybe to the audio cortex and things like this. So it took us a while. Started in 1996, and we had our first patient recommended by Jim Thorpe Rehab in February of 2000. Well, things kept developing, and slowly, of course. But more and more research started showing the efficacy of what we were doing. And we have a couple of pieces of researches, resources that shows this. And then we got a challenge. I met a Dr. Bob Garrett, who was the regional principal over at Mabel Bassett Corrections. We were in Denver, and we started chatting, and he says, I need this over here at Mabel Bassett. But we can't go through the internet. I'm going, OK. Well, a year and a half later . . .

>>> And Mabel Bassett is a women's prison.

>>> Women's prison. We have 1,400 women incarcerated out there at all levels, from minor security to major security. Anyway, in a year and a half's time, we were able to redesign the delivery system so we can actually place quote the system or the box, plug it into their server, and on their local area network, we could have hundreds of personal computers, PCs, that they can have as many as six or eight people throughout the day on the same computer. So they can serve a lot of people. Now, they only have 12 out there. Trish Forsyth said, you know, we've got a waiting list, a long waiting list, and we need a larger room, we need it air conditioned, which the one they're in now is not. And they said, we could use 30 computers instead of 12. There were just too many people. We've had super success with this. I've got it in schools, over in Sharon, Oklahoma, outside of Woodward. Murray went there, and so did her brother, Jim.

>>> We're on a station out there.

>>> Oh, yeah, right. Well, Marie and Jim Hatfield and Marie Hatfield, that was her maiden name, a lot of people know them over there. The Hatfields were there for a long time. But anyway, it's rather exciting, but now there are some new things that have developed we did not know about.

>>> Very good. Let me go back just a little bit. But before we do, I want to ask you one more question about Mabel Bassett now. You didn't really specify what kind of assistance that you were providing there.

>>> Ah. Well, we actually take and we've trained some of the inmates, plus the director, and be able for them to do their own oversights. So she didn't have to hire anybody.

>>> OK.

>>> And then we installed our computer system that doesn't go through the internet. It connects just to their server.

>>> And the problem you were trying to solve was what?

>> Well, and the problem was it didn't have to go through the internet. Before us it was teletherapy through the internet.

>> OK, but the inmates were being treated for what kind of issues?

>> Well, my goodness, a good 85% of them have had drug and alcohol abuse problems, traumatic brain injuries, they've had strokes, the full gamut and range. In fact, I've got one little report here was showing this such. He's a Native American. And she's like 23, 24 years old. And she had a severe injury before she got into prison. Got into prison, of course nothing actually happened. And when we went ahead and tested her, she was on what they call attention and focusing. She was at the .2 percentile. That means below 1 percentile. The highest is 99.9. She then, in six month's time, was given the same neuropsychological exam again. Not by me, but by the internal there. And she increased to the 98th percentile.

>> Really? Wow.

>> Which is 98.9 percentile. She's at the top.

>> There you go.

>> There's nobody any better than she is.

>> And she did that in six months?

>> In six months, in six months, yeah. It's totally amazing.

>> For our new listeners, let's go back and talk just a minute about the--Gary, I don't know where we are on this segment, but about what this individual is looking at and the kinds of things they're interacting with. Because what I remember, you had different programs where you could access those programs. It caused you to interact, do some interaction on the computer. And it trained your brain.

>> Yeah.

>> And developed. Is that the way it still works?

>> It's exactly the same thing. And what it does is neurogenesis. And that helps the development of the brain.

>> The brain has some tremendous regenerative properties, right?

>> It's the only part of your body that can generate itself.

>> There you go. There you go.

>> Interesting.

>> Yeah. Now, you've had this experience at Mabel Bassett. We'll probably come back to that. But some other things have happened.

>> Oh, yeah.

>> We don't have much time here.

>> I'll be real quick. I, on the 27th of March, around 9:30, I was watching the OU Syracuse game.

>> Got a little too excited.

>> Got a little excited. And, of course, everybody, you know, it's my alumni. And I went to put a log in the fireplace, it was a cold night, and I couldn't get up. And Marie got me over to the hospital.

>> Marie, being your wife?

>> My wife.

>> Who is a registered nurse.

>> Registered nurse for 50 some years got me over three miles away to the Regional Hospital, middle of the city, and they determined quickly with an MRI that I had a torn ascending and transcending aorta.

>> Which is almost always fatal.

>> Oh, yeah.

>> OK, he's here, sitting here alive and well.

>> He looks pretty healthy.

>> Yes, and we'll finish this story when we come back on *Oklahoma Innovations*.

[Music]

>> Now in its 14th year, this is *Oklahoma Innovations* on the OCAST Radio Network.

>> The stress of finding a job after college is compounded for recent graduates entering a tough job market. But thanks to the Oklahoma Center for the Advancement of Science and Technology, more students connect with the state's most advanced technology companies, while earning income and valuable on-the-job training. Through the OCAST R&D Intern Partnerships Program, students gain experience in the industry, work with mentors and operate specialized instruments. Intern training leads to starting salaries 12% higher than Oklahoma's average per capita income. OCAST is investing in Oklahoma's best and brightest. Creating jobs, investing in our future, that's what OCAST is all about. OCAST is seeking intern partnership opportunities that will allow Oklahoma students to gain hands-on experience in science and technology careers. For more information, call OCAST toll free at 866-265-2215 or visit their website at ocast.ok.gov. The future of Oklahoma looks bright.

>> The waving wheat can sure smell sweet when the wind comes right behind the rain. But what happens when the rain doesn't come? Wheat growers across Oklahoma know too well the impact that a poor-growing season can have on crops and markets. Drought, disease and poor soil are just a few of the things that keep farmers up at night. But what if those issues were a thing of the past? In labs funded by the Oklahoma Center for the Advancement of Science and Technology, researchers are finding new ways for producing better plants that can withstand unfavorable conditions. Creating opportunity and improving the economy, that's what OCAST is all about. OCAST is looking for small business owners serious about investigating new products, services and processes. For more information, call OCAST toll free at 866-265-2215 or visit their website at ocast.ok.gov. In a state deeply rooted in agriculture, plant science helps Oklahoma farmers grow their business.

[Music]

>> Research and development, technology transfer and commercialization, creating high-paying jobs in Oklahoma is what OCAST is all about. This is *Oklahoma Innovations* on the OCAST Radio Network.

>> Our guest this week is Dr. John Hatfield. We're talking about cognitive systems teletherapy systems. These are--this is a very intriguing technology. But before the break there, John was telling us a little about a heart problem he had. And when he walked in the door at the studio today, I mean, he looked fabulous.

>> He does.

>> But you were talking about the fact that you realized you had a heart problem.

>> Well, I didn't know that until I was going to put a log on the fireplace after I was watching the game of OU and Syracuse on the 27th, and I couldn't get up.

>> Right.

>> And so I mentioned before, my wife is a registered nurse of 50 plus years, so she heard me groaning, and she was in the computer room, and so she helped me up and got me over to Midwest Regional Hospital. Fabulous emergency people. This was on a night where it's a nasty night, and they all just swung into action.

>> This is in Midwest City, folks.

>> Midwest City, Oklahoma.

>> Let me stop you right there because this has an application for an area concept that you've been a part of, cognitive reserve.

>> Ah, yes.

>> And you almost became--and actually, this cognitive reserve came into play in you being able to survive this procedure.

>> Now, let's talk about what--you had the surgery.

>> Yes.

>> Talk about what they did and then what happened.

>> Well, actually, they started the surgery around about 12:30 in the morning. And of course they do all the prepping stuff and they cut you open, spread everything open.

>> Pleasant thought, isn't it?

>> Oh, yeah. And they pounce at the aorta, the ascending aorta, the big one, the big one right above the heart. And then there's a transcending one that then carries it off to the branches. And both had a three-inch rip, tear in them. And it was pumping blood everywhere but to my brain. And so he quickly tried to see if he could suture them. And it wouldn't hold the sutures. And so consequently, he had to do what they call the aortic dissection, cut it open and then put a six-inch tapered Teflon tube inside the aorta and then wrapped it with Teflon again, and basically made me a Teflon aorta. I mean, but he did say something that just shocked me. He said he had to literally shut off the flow of any kind of blood to the brain for a period of time. Normally that means that you're going to have some severe brain damage. That's what happens in a stroke. You lose a lot of--lack of blood to the brain, exactly. And then after they did the heart, lung

machine, they put me on what they call slow flow blood to the brain. And anyway, he didn't expect me to wake up. He thought I'd be in a coma for a while. But I woke up within a--between an hour and an hour and a half, two hours after the surgery. Nine hours of surgery. And complaining. They wouldn't give me anything but these stupid little ice chips. So I finally said give me hot tea.

>> There you go.

>> Now, listen to this, folks. If you ever have heart surgery, listen to this.

>> And I said, you want me to cough the blood up out of my lungs so I don't get pneumonia, give me something stimulating. And I was able to negotiate with Dr. Toughanipour, my cardiac thoracic surgeon. He said four cups.

>> And I said, no, I said make it 12. We agreed on six. Two days later, all my lung fields were clear. I had no problem whatsoever. And so he came around, and said, John, what are you doing to keep your brain so healthy? So I told him about our cognitive program, which develops new neurons out of the hippocampus portion of the brain. Each little neuron can make 30,000 new connections throughout the brain, as directed by the hippocampus that it needs to make some connections. And so over a period of time, they keep on becoming more and more and more robust. And he said, ah, neurogenesis. What you've done, John, he said, you have actually developed what we call cognitive reserve.

>> I said, what do you mean? Ah, and then the analogy is say you've got a truck with dual tanks, and one tank starts running a little low, and the car starts bucking, the truck starts bucking a little bit, you flip the switch and you've got another tank of gas. You don't stop. You go right on. Well, he said, that's what happened to you. Your cognitive reserve was so robust and strong that you were able to withstand the lack of oxidated blood to the brain for the period of time you did.

>> And that's been your life is helping people regenerate the connections in their brain.

>> Absolutely.

>> After injuries, after diseases, after all kinds of issues.

>> Absolutely, absolutely. And so this is why it's been so successful. In fact, the Department of Rehab Services, while I was in the hospital, believe it or not, Gary, I actually wrote a proposal in the hospital for up to 20 of our systems to be placed throughout the state, and then second year, the community would then take over the cost and support related to it.

>> And your contact then was Dr. Michael O'Brien with the Oklahoma Department of Rehabilitation Services?

>> Yes.

>> He's a brand new head of DRS.

>> Yes, I've known him before.

>> Yeah, he used to be in Oklahoma. Left for 10 years, came back.

>> Yep, yep, yep. Michael Brian, he knows our program. In fact, he was the one that got it approved originally.

>> I'll be. I did not know that.

>> Yeah. And so we're excited about this. It looks like we will have it up sometime by the end of the month at the Bridges Foundation in Tulsa.

>> Wow.

>> And so we're expecting to--this is part of that stimulus money. And it's going for a very, very worthy cause. Because these people will be able to become independent and be able to become employable.

>> Now, John, you know, one of the things that people need to do, and, of course, you've talked about several programs that can be accessed. But folks who have family members or who themselves may be suffering from a brain trauma incident or suffering from any number of things, stroke or anything like that, they might be able to use your services and can be a benefit. They need to know how to get hold of you. What's the contact information?

>> Yeah, I'm going to give you several different contacts. One is an e-mail, so if they have a computer capability, an e-mail is teletherapy@gmail.com. I'll spell that out, teletherapy@gmail.com.

>> There you go.

>> And then my--I better give my cell phone. And my cell phone is of course 405-706-6950. And we're installing systems around and so forth. It's easier to get hold of me by e-mail. Now, if you're calling long distance, I have a toll free number for the office, and that's of course 1-877-204-1737 extension 11 for John Hatfield.

>> Very good. And we'll give that again here before the program is over.

>> That's what I was looking at in the notes.

>> He did very well. I'm sitting here reading it as you were giving that.

>> My brain is functioning so well. In fact, it's even better than before I had all this incident with the aorta.

>> Let me point out that you, of all people, would be interested in that because that is your technology is training the brain to do things that it cannot do or has not been able to do in the past.

>> The only part of the body that can regenerate itself is the brain.

>> There you go.

>> And so when someone says, you know, we talk about the image of God and so forth, not to get real religious, but I believe--I think the brain, your brain and my brain, are not that much different. You look at one, you see the other, almost. And so consequently, being part of the body that can regenerate itself, we need to do something about--when there is some sort of an incident or if it hasn't fully developed like for Down Syndrome or Cerebral Palsy or something like the cognitive parts of the brain. And they need connections.

>> You know, John, we talked about drugs a while ago. Let's just take normal people who are on a lot of prescriptions, how that affects their cognitive abilities.

>> Very much so. And what we are finding as people who get onto our program--and, by the way, it doesn't teach math or English or anything like that. It's a stimulus that gets the brain to react. And that challenges the brain. To gets the new neuronal connections made. What we find

is those people who are on drugs, prescription drugs, are absolutely able to start reducing those with a doctor's recommendation, start reducing those, because the brain starts not needing it.

>> Interesting.

>> That's amazing.

>> Rewiring of the brain through stimulating mental responses. That is kind of the nexus of what you have accomplished with this technology. And let me point out that it's been a while, but OCAST has funded part of your research.

>> Oh, yeah.

>> Way back when.

>> Way back when, yeah. We were one of the first of the first nine that was recipients.

>> Exactly. And now you have an up and running, we call it a business, but that's really maybe not a bit of a misnomer. You're still wanting to make a business out of it, and you've achieved some level of that. But a tremendous service that you're providing to people who have suffered from traumatic injuries and things of that nature. Let's talk about the business side of it.

>> Yeah, on the business side, we're hoping, with some changes in the health plan, if you want to call it, because right now--

>> Hold that thought right there. We'll talk about your business. Because lock is looking in command here.

>> It's demanding.

>> We're talking to Dr. John Hatfield with Cognitive Systems Teletherapy System. And we'll be back with more on *Oklahoma Innovations*.

[Music]

>> There's more to learn on *Oklahoma Innovations* with Gary Owen and Steve Paris on the OCAST Radio Network.

>> When people think about science and technology, they imagine the future. Although researchers are developing the technology and treatments of tomorrow, results can be seen today. An investment in OCAST yields immediate return to our state, through increased salaries, higher productivity, and a diversified economy. Oklahoma is an emerging global leader in science, technology, research and development, with a workforce that continues to improve, both in incomes and education levels. Oklahoma can achieve a dynamic economy with a culture of innovation and new opportunities that attract and retain bright, creative people. Creating opportunities, improving the economy, and investing in our future, that's what OCAST is all about. For more information, call OCAST toll free at 866-265-2215 or visit our website at ocast.ok.gov. An investment in OCAST is an investment in Oklahoma for today and tomorrow.

[Music]

>> If it has to do with science, innovation, research and development, technology, if it has to do with technology manufacturing, if it has to do with education and science and technology, if it has to do with anything related to science and technology in Oklahoma, we talk about it on this program, *Oklahoma Innovations*. Gary Owen and Steve Paris, your hosts. This week, we have a great friend of ours and an interesting gentleman, Dr. John Hatfield. And he deals with cognitive

therapy systems. And I'll tell you, before the break, before we get to what you were talking about before the break, I want to mention something. Those of you who live in Oklahoma City, western, southern and northern Oklahoma, live in the KOCO TV viewing area, back on June 20th, John and his organization were featured on one of, what was it, nine stories, did you say? It was several stories.

>> There were six all total.

>> Six stories? That they bumped Wheel of Fortune to feature these stories, which that says a lot right there. And your organization was featured on this broadcast that kind of gave a two and a half minute overview of what you are doing. And if you saw that, that's who we're talking with. So anyway, before the break, we were talking about the business side of your--

>> One of the hold-ups, if you want to call it that, is Blue Cross Blue Shield, as many listeners may not realize, but every state has a Blue Cross Blue Shield organization. It's non-profit. And they're separate. They don't title themselves together. And so consequently, the Blue Cross Blue Shield likes to keep its money. And the only state that Blue Cross Blue Shield pays for cognitive therapy is down in Texas because the law was passed by the legislature, overwhelmingly, by the way, but the other states right now, and Blue Cross Blue Shield are saying, well, we know that cognitive therapy works somewhat, but it's experimental. So they're kind of coming to the table. And I think with the changing in things that are happening right now in the health field, we're seeing it come. Once it comes, with Blue Cross Blue Shield being the gold standard, then we're going to see Medicaid, Medicare that will start. Because I think, again, we talk about getting people back to work. If they can't think things through, if they can't make decisions at a high enough level, they're not going to be able to work, and they're going to be on the public rolls for ever and ever and ever. That's too costly. We're can't afford it.

>> And who are we going for, Blue Cross and Blue Shield? Fine organization.

>> Oh, yes. Oh, yes. And they're going to be around a long time.

>> Oh, yeah. I would want them around.

>> You bet you.

>> We just want to expand their services so that we can get--

>> Yeah.

>> Because if you have a stroke, you want to get your cognitive memory back.

>> You know, one of the things I think we should do real quick, Steve, is give our audience a quick overview of how the system works. I mean, I've looked at your notes here, you've got 63 cognitive exercises with over 1,500 variations. But talk about how this works with a patient.

>> OK, right at the beginning, we have four presets when they turn on the computer and so forth. And it's a focus on attention and timing. And what we want to do is get them to be able to focus on the center screen and then a yellow square will appear of various sizes, depending what their level of deficits are, and they click. And they want to click as fast as they can. They're being counted. We want to get down to a .35 seconds. That's 3,500 hundredths of a second click response. And they build up to that. Now, once they build up to that, the oversight therapists from afar can actually change it so that it gets down from let's say a half inch square down to a

pinpoint. And we use this kind of like a warmer-upper because the old brain is stirred up, so-to-speak.

>> Sure.

>> Then it goes into one of the--another one of them is there is a blue square, yellow square. And the instructions--and by the way, it will verbalize the instructions, so you need to listen to them. It will say, do not click on the blue square, only on the yellow square. Again, as fast as you can, because you're being timed. Well, this is so interesting, because you think, well, such a little silly thing like that, what can that do? By withholding, and the response, the brain has to do some different kinds of functions. And it gives you--you don't over anticipate. And you think things through before you act. And it's rather interesting. Some of the people have told us, like over at Mabel Bassett Corrections, one lady said, well, I used to like to fight all the time. And she was about a 52-year-old grandma. But she says, after this, she says, I just don't get in trouble anymore, don't get put in lock-up. And I said, oh, what do you credit that to? She says, well, remember that blue square and yellow square? Yeah. And when the blue square appears, you don't click on it? Yeah. Well, when someone says something that Ts me off, but she said, I think blue square, blue square, don't react, and just walk away.

>> It's a learning process, isn't it?

>> Yeah, and by golly, this is kind of a psychosocial aspect that the women are finding when they don't overreact, other people don't overreact, and they can get along. And it's amazing what happens.

>> So is there a chemical change in the brain that makes this work?

>> I'm sure anytime that you have new developments in the brain, as far as neurological, there's got to be some sort of chemical type of thing. You don't get the adrenaline rush, so-to-speak, which, I think was one of the great French philosophers said intelligence is but a cork upon the seat of emotion. Well, when your emotions are high, you can't think clearly. And so that's a chemical reaction.

>> And quickly, we want to mention, a lot of this is home-based. So you can be at home on this, you can be at your job, or whatever.

>> Oh, yeah.

>> And you work with an online therapist, is that right? Is that how that works?

>> Well, online, they don't directly talk with each other. But through our server, they can communicate. And there's a closed e-mail. We're going to have our first official one from the VA, posttraumatic stress and traumatic brain injury that will be starting within probably let's say a month or less.

>> So this is going to be among our war fighters.

>> Absolutely.

>> Injured overseas?

>> Yes.

>> OK, we'll talk about dementia and Alzheimer's. Because there's some different things--you mentioned earlier that there were some things that came into play there. What are you discovering there?

>> Yeah, what we're finding is because of your focus on the tension and the connections in the brain, after the age of 50, your brain physically does start shrinking. And as it does, your frontal lobes, which is your quick response time and your emotions and so forth, are affected. And short-term memory is in the frontal lobes. And so consequently--well, I'll give you an example. Madeline was 76 years old. And when she was--

>> This was a case study, right?

>> A case study. And she was in her daughter's home down in Norman, Oklahoma. And she looks at her daughter, and she's got this monotone voice now, which she didn't have before, what are you doing in my home? And the daughter says, mom! Well, they brought her in to our office and said, can you help Madeline? And Madeline would say to Marie, she would say, I used to be smart. Well, she was the valedictorian of her graduating class here in Oklahoma City.

>> Wow.

>> And she ran run of the real top boutiques, women boutiques in town for a number of years. And so here is a woman that someone has to kind of--well, in fact, her husband said, whenever they would go out to a restaurant, they would have to--he would have to stand by the lady's room or she would wander off.

>> Oh, my.

>> Well, that's kind of the intermediate level of dementia. Now, we got her started in a program. And in two and a half months, we got a call from her husband saying, don't charge us the next month because we're going to take a month's vacation. And went to see his old World War II buddies and so forth. And came back, and they had a wonderful time. And he said, Madeline, don't you want to start in that program again, which is she had in her bedroom? No, she said, I don't need it anymore. Even her force had a lilt to it.

>> Interesting.

>> Oh, she came back.

>> And she came back, yes.

>> It's the brain regenerating itself.

>> It regenerates itself. Now, dementia possibly can lead into Alzheimer's. But once you've got Alzheimer's actually started, at this point in time, we don't have a way of reversing it. But we can use other parts of the brain to take over some of the actions.

>> Maybe kind of prolong some of the--

>> It prolongs it. We had two Alzheimer's patients. And the longest lived an extra year and a half is all.

>> That's marvelous.

>> But it was some time.

>> Very good. So there's possibilities out there for things that--I mean, you're still learning, even though you've developed this technique. You learn all the time, don't you?

>> Oh, my, goodness. You better. Something new every day keeps that brain--

>> Now, most of your focus, I think, has been internal Oklahoma, within our borders, but you're kind of getting out. Aren't you getting out?

>> Oh, yeah, we're up in Alaska, we're down in Florida, we're out in California.

>> Really?

>> Yeah. We've up and--gosh, I can tell you so many stories, but it will take too long.

>> Well, we've got just about a minute. So you actually have receipts coming in from contracts that you're working on?

>> Yeah. Most of the things that are coming in is coming in from individuals. And we're not profitable yet.

>> Yeah, yeah.

>> That's a long process.

>> It's a long process. But the value is very gratifying.

>> I want to allow plenty of time for people--now, do you have a website?

>> Yes, we do.

>> What's that website?

>> It's www.cog/systems.com.

>> That's cog/systems.com. And toll free number, 877-204-1737. Is that right? Extension 11 to get hold of Dr. Hatfield directly.

>> Yes.

>> And you can e-mail him too, if you'd like, teletherapy@gmail.com. So you've got that information there. And Steve?

>> Exactly. And I'll tell you what.

>> We're out of time.

>> Are we?

>> Yeah, we're out of time.

>> John, I want to have you back sometime soon.

>> OK.

>> Learned a lot here. And I want to thank you so much for being our guests. And we hope to see you soon.

>> See you next week.

>> OK, Gary.

>> On *Oklahoma Innovations*. Have a good week.

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