**Selected Proceedings
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Rehabilitation
Research & Training Center for
Persons who are Deaf or Hard of Hearing

University of Arkansas   Arkansas Rehabilitation Services
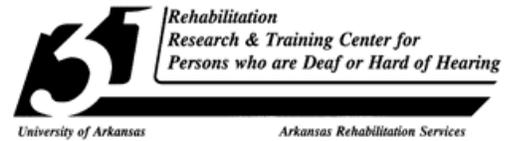
Communication technology scares me.
What's it all about
Presenter: PHIL HYSSONG

PHIL HYSSONG: Good morning. I want to thank you for being here this morning. First, we want to talk about remote technology. Now, we're not always able to have people on-site. At ALDA, you have people on-site. Pat is right here in the room able to provide services. That is ideal. However, there are a limited number of certified CART providers in the whole country so we need a way to multiply that number.

One of the ways that we're able to do that is by providing remote services. It's not a perfect technology. But it fills a need. Here is a good example of why we have gone to remote technology. In this room are two folks from Rockford, Illinois, about 80 miles from Chicago. That's approximately an hour and a half drive. They attend a two-hour meeting once a month. For us to provide a CART writer on-site would mean we send somebody three hours on the road to do a two-hour job. If we use remote technology, that person could have more hours of work rather than driving for three hours.

In this particular case, we were able to find somebody locally to support the meeting on-site. In many communities, that's not the case. The trained captioners/CART writers just don't exist.

Before I go any further, I want to ask you today if there are any particular questions that you would like answered this morning?

AUDIENCE MEMBER: I just started a course in psychology at a local Community College in New Jersey, and they don't provide CART services. I'm wondering how I can help myself. My word discrimination is about 70 percent, so I don't hear everything that the lecturer says.

AUDIENCE MEMBER: What about in public school, high school and junior high school, would that be possible for some of the deaf children who are mainstreamed?

AUDIENCE MEMBER: What is C-Print and Typewell?

AUDIENCE MEMBER: I have trouble hearing in church. Are these available and how would they work?

PHIL HYSSONG: I want to explain what we need to make remote technology work. One, you need to be connected to the Internet. Two, you need to be able to capture the audio. We have a saying in the CART industry, "If we can't hear it, we can't write it." We don't always have that opportunity when we provide CART services. And sometimes you yell at us because the CART services are not great. You'll say things like: You missed a few words! Or "I don't think that's what the person said." or "Why are there mistakes on the screen?" And the reality is sometimes it's hard for us to understand, too. I mean, we're only human. And we have to deal with things like accents, we have to deal with what they say -- how they pronounce a word. And we're trying to figure it out.

I can remember early on working with Pat and we had a professor in a class that kept saying a word over and over and over. And she was from Russia. And we wondered what is she saying? We just couldn't figure it out. Finally, we figured out the word was "Tendon." Like in your arm. A tendon. The light bulb went off and then we knew. But Pat sat through 40 minutes of a lecture trying to figure out what is the word this woman is saying, because it didn't make any sense.

So I would just encourage you to be conscious of that, that we are only as good as the prep materials we receive from the participants, and we try our best all the time to listen, but sometimes there are factors that affect that. Yes?

AUDIENCE MEMBER: It's pretty common for an interpreter to stop a speaker if they miss something and ask for clarification. Do CART writers do that as well?

PHIL HYSSONG: CART writers do not typically do that. That is just a standard that has been set. That might be something for us to talk about within the CART community. Sometimes in an academic setting we will say, "We are unable to hear this. Could you please speak up?" In a conventional setting, like today, we don't because we don't know who is understanding and who is not. But in a one-on-one situation, we would empower you. We would ask, "Do you want us to interrupt?" We try to work with the client because we are an extension of you.

A CART writer's nightmare is to have to write and be publicly being seen, and not understand what the person is saying.

AUDIENCE MEMBER: You talked about difficulty of sometimes not being able to understand speakers. I want to point out that every CART writer puts in their own dictionary. CART writing is not standard. When the captions come out with something strange, the reader has to have good vocabulary skills to figure out what was meant.

If there was more standardization on how to encode CART, there might be fewer problems where the words don't come out right.

PHIL HYSSONG: You bring up a valid point. The CART writing industry is constantly trying to improve, to see how they can minimize the number of errors.

We are going to make an audio connection, now. This is actually a very good example of how one can make adjustments in a presentation type setting. Okay, I believe George is connected now. One of the nice parts about remote CART technology is you have options. Here is an option: the phone line just failed. Consequently I'm able now to dial George on my cell phone and he will hear me.

We were talking about the necessity of being able to hear and understand. We were talking about the Internet connectivity, and the fact that you will need some kind of computer for remote technology to be able to view what it is you're listening to or who is talking at the meeting that you're participating in. The theory is that you're able to listen to an event. Our CART reporter transcribes the event, sends the text to you via the Internet, and you're able to read along on the computer. That is the whole concept within remote technology.

AUDIENCE MEMBER: I'm wondering would that be able to come out on a PDA that has e-mail or something like that? Say if I was at a wedding and I wanted to hear what was said. Could I hire CART off-site and have them listen and only have a PDA, not a whole laptop in my hand, and get a good percentage of the ceremony? And if so, where would I find the information to do that?

PHIL HYSSONG: The answer to that is yes, you can. We can stream to a handheld device like a PDA so that you're able to hear the ceremony. We know of a gentleman who was actually in an airport and wanted to participate in a meeting as he was walking through the airport. He was on his handheld device and able to read everything that was going on, and was able to have cell phone connection with the teleconference call.

AUDIENCE MEMBER: Would we call you and work it out with you on how to do that? Is there some book or pamphlet or brochure that would give us the steps that we would need to follow? There are multiple uses for those PDAs, taking college education classes or going to book groups.

PHIL HYSSONG: You can contact a company like Caption First. There are other companies that provide that kind of service also. I think it would be one-on-one with whomever your service provider might be to try to work those kinds of specifics.

I want to talk first about machine CART. That is what Pat is doing over here. The word CART means "Communication Access Realtime Translation." "Communication Access Realtime Translation." It is word-for-word speech to text interpreting. Word-for-word. In CART, we do not determine what is the most appropriate or what is the most important

information. Remote CART is also word-for-word. You decide if I'm full of beans, and haven't really said much of anything. That's your choice to determine that. That's not the CART writer's position to determine that. So, remote CART is word-for-word speech to text. Verbatim. Complete translation of all words and sounds.

Now, let's see what Pat might put on the screen if I do this (Knocking on podium). She writes a description of sounds. This is very important because, for example, one time we had a remote teleconference call going on and you could hear a door opening and slamming. Then, the person on the phone said, "Who the heck are you? If you were the user on the other end and saw, "Who the heck are you?" you would have no idea what that context was. But the reality was because we put up on the screen, "Door opening." The user was able to recognize that somebody had walked in the room. Since you are not on location, you can't see anything. But CART gives you those kinds of cues.

I was at ALDA in Florida, Orlando, three years ago, and all of a sudden I was startled because the audience was looking at me. I was looking out into windows and it was pouring down rain. It was storming and there was a loud clap of thunder. The CART writer put up "loud thunder" and then everybody in the room turned and looked outside, because then they could understand what was going on.

That is CART. Complete communication access. It's a full screen of text. You see Pat has a full screen of text. There is no visual, there is no video, there is no camera on me. But CART is a full screen of text.

AUDIENCE MEMBER: Some of the meetings I've gone to, instead of having a big screen like this, there is only a red screen and you only see a couple of lines.

PHIL HYSSONG: That is called LED captioning. It's just another form of captioning services.

Now, we are going to talk about voice CART. Voice CART is done basically the same way machine CART is done, from a technical standpoint. George is in another location, in Texas. He is listening to me via the cell telephone. He is transcribing and sending back to us via the Internet. I'm projecting it on the screen. So what you are seeing here is George in Texas writing for us.

What George is doing different from Pat who works with a machine and the laptop. George is re-voicing. He is using his voice and voice recognition software, and that's what is coming up on this screen. Same concept, but George is using his voice, whereas Pat is using the machine.

Now, a few years ago, voice recognition was going to take over the world. Do you remember that? When we first started talking about voice recognition, it was here to stay. It was going to put everybody out of business. It was just going to do everything for us.

That really hasn't become the reality. It is not easy. I can tell you that George is one of the best writers in the country. George is on staff with Caption First and works with us. We have been doing a lot of testing to determine where voice recognition is going to be the most effective.

Now, another misconception about voice technology is that any person can do it. Machine CART takes two and three years to just learn the basic skill. It takes 20 plus years to get really good. So the theory about voice recognition was that we are able to hire people at $10 an hour and train them to be voice writers, and that will take care of the shortage in machine writers. Everybody will be served and the cost will be really low.

Folks, it's not true. George has had years and years of training.

The software programs used are not inexpensive. You need the fastest computer possible to make this work. All those requirements make the costs go up. A certain level of cost is associated with these types of services. You need a person with a good voice who can be translated and understood. Not everybody can do it.

Automated phone service is where voice is being used. When you only have single word answers, yes or no. From a voice recognition standpoint, "yes" and "no" are very different and the computer can easily pick out one or the other. Say "maybe" and you'll shut the system down because it doesn't know "maybe." It only knows "yes" or "no." Would you like the schedule, yesterday, today, or tomorrow? Say "Tuesday," and it won't be able to work for you. That illustrates the state of voice recognition.

Now, I want to talk about text interpreting, that is the umbrella word over C-Print and Typewell, two emerging technologies. C-Print and Typewell are primarily used in the academic setting. It's concept for concept. Remember, CART is word for word. The C-print operator will listen to a professor delete some of the extra words that were not, in the C-Print operator's opinion, necessary. The concept is the same, but it's not verbatim.

Now, we have received phone calls from folks who have said that their boss would like to try C-Print for a staff meeting. You can try that. See if it works for you. I view all these technologies, as a menu. Choose what you want.

The intention of every one of the people in communication technology services is good. They want to help. However, one might serve you better than another. Only you can make that choice.

There are two different modes of training within text interpreting. Some modes use abbreviations; some of them are based on phonetics and how they create their files. What Pat does is all phonetic-based. She listens to sound.

C-Print types words, but the operators drop all of the vowels when they type a word. The computer translates it and puts the vowels back in. It's like a shorthand version of notes. In the case of "CART," they might type "CRT," and it would translate "CART." The operators learn a shorthand version of typing.

Certification is the biggest issue. I've been in this business for over 20 years. I have specifically been with Caption First almost six years. Never has anyone asked me if any of our people are certified. Never. We provide hundreds and hundreds of hours of service a month and never has anyone asked me if the people are certified. If you ask about certification, whether it's for a remote writer, a machine writer, a voice writer, or C-Print and text interpreting, they have emerging certifications.

C-Print and Typewell have emerging certifications. C-Print does not have any specified percentage level of accuracy. The last time I checked their website, they had testing. They said that certification was in place, but they didn't give a quantitative number. Typewell has, for a level 1, beginner, an 80 percent capture rate. That means they capture 80 percent of the content. Level 2, a more advanced level, requires 87 percent capture rate of content. In comparison with word-for-word CART, we go after 100 percent and it has to be written at a minimum level of 98 percent accuracy.

AUDIENCE MEMBER: I'm not sure I understand the difference between C-Print and Typewell.

PHIL HYSSONG: There is no difference. There is a slight difference in how they are put together. But the output is the same thing.

AUDIENCE MEMBER: When we are talking about CART writers' certification, we need to educate the public about what kind of certification we are asking for. Anybody that uses a steno machine for court reporting needs to be certified for something. But they may not necessarily be certified for what we're using here.

AUDIENCE MEMBER: When you say 80 or 87 percent capture rate, is that of the concepts or of the words?

PHIL HYSSONG: It's not completely clear. But as I understand it, it is concept. It is 80 percent, 87 percent of the concepts are displayed.

AUDIENCE MEMBER: So that is a very subjective meaning, right?

PHIL HYSSONG: I tend to see it that way. That is the biggest problem when you start selectively bringing in text. It can be very effective for people, but that can be the challenge, too.

AUDIENCE MEMBER: Is there a difference in price between the C-Print and Typewell.

PHIL HYSSONG: Costs vary, depending on the geographic region that you are in. I have heard of costs as high as $250 an hour on the east coast. I have heard costs as low as $55 an hour in the middle of Kansas. It really depends on the number of CART writers in the area. California has a three-hour minimum to go anywhere. It doesn't matter if the job is 15 minutes, or if the job is 3 hours, you're paying for three hours. They do that is because traffic is so horrible. In Washington, D.C, many people have a four-hour minimum because traffic is even worse in D.C. That is the challenge for on-site CART writers.

The positive side of remote services is that they never have to leave their home. Our CART writers recognize that and are willing to accept a slightly lower rate because they are able to do twice as much work.

Voice writers, the industry is saying, will follow the same structure as machine writers.

C-Print and Typewell are considerably less per hour. C-Print and Typewell range from between $25 an hour to $60 an hour. The reality is somebody has to find the individual to train them. If a school wants to establish C-Print or Typewell, they need to identify the person who is willing to do the work. They find the employee and train that employee at the school expense. Equipment needs to be purchased, a computer, audio equipment, and so forth. So, while the hourly rate is $60 an hour, there are a lot more expenses associated with that. That is just simply how that industry chooses to market themselves. But there is no question; C-Print and Typewell services are less cost.

Another factor is experience. ALDA wants and deserves 100 percent accuracy. That does not happen with somebody who is fresh out of school. When you start looking at the person who has 20 years of experience, obviously their salary is higher. You can also look into special contracts. You have ALDA meetings and you have chapter meetings, every month for a year. You might want to talk with your CART providers to see if you can get some kind of deal if you use them for the entire year. Or book in advance or pay in advance. There are all sorts of options throughout the country. Different people will handle things differently. There is not one central CART company, you know. You all have your own kind of private people that you like to work with. So try to strike a deal with them and see what will work.

Some of the other technologies that you will run across that are not as formalized as voice and C-Print and machine CART are note takers. Oftentimes colleges will provide people with note takers. Even within business, you might be able to get a note taker. Another form of communication, which is very, very important that we really don't touch on when we are talking about text-based things, are our interpreters. Early on in this business the interpreters didn't like us, and we didn't like them, because we thought we were going to take over each other's jobs. We quickly realized that we serve different groups of listeners. Those who use sign language as their primary mode of

communication want interpreters. They don't want text. Those who use primarily English-based text say the CART interpreting is great.

The last area of an alternate technology we are looking at are foreign languages. At our particular company, we are now providing services in four different countries. Those services are all English-based in English speaking countries. We received two phone calls this year from students with hearing loss who are in foreign language classes. We were asked to provide CART services in Italian and CART services in French this year. Unfortunately, we have not been able to provide that service because CART is all English-based.

So we are looking at alternatives, both translation programs so that we can write in English and it would translate into a foreign language. We are also discussing the impact of voice because the person could speak in French, be able to be translated in French.

AUDIENCE MEMBER: Who captions Spanish TV?

PHIL HYSSONG: There are Spanish real-time captioners, but I can tell you that there are only a handful in the country. Some of the programming has been sent to South America to be realtime captioned there the text being sent back to us.

AUDIENCE MEMBER: I want to say I have seen a lot of Spanish language captioning in Chicago, so that is really great. But the only place I have ever seen French captioning was in Toronto.

PHIL HYSSONG: I can tell you a couple other things just in dealing with captioning. The Telecommunications Act goes into full effect January 1, 2006. That means 100 percent of new programming is real-time captioned. We're having a hard time keeping up with that. It is a wonderful thing that the government has encouraged everybody to do that and is making it law. The reality is Pat Graves and George are only human and can only work so many hours in every day.

We're trying to keep standards up at the national organizations. Now, the FCC is talking about tougher guidelines. Not only have they said 100 percent needs to be captioned, but now the FCC is talking about a level of accuracy with those captions. They are working towards that end and we're trying to get better. To be honest with you, it's tough. It's hard to keep up. The amount of service is continuing to grow and grow.

I want to answer the question about public high school accessibility. It's happening, it's rare, but it's happening. Public high schools struggle with spending that kind of money on accessibility services. We worked with Naperville, a community in Chicago, which tends to be a little bit more of an affluent school district, and they were a tough, tough sell. Finally what sold them was they saw the student's scores skyrocket. With remote

CART service, he went from a C/D student to an A/B student overnight. He could finally understand what was going on.

First of all, we all know that anybody under the age of 18 knows more about computers than we probably ever will in our entire lifetime. So kids love this technology. You give a laptop to a kid. My computer often runs on a cellular modem, so we can be completely in a cellular environment. George is listening to me on a cell phone. With the computer hooked up to a cellular modem, the student can move from class to class, hand the phone to the teacher, and sit at the laptop at their desk getting text. The service can be done, it has been done, but without question, it's a tough sell. The student's mom worked for a year and a half, hammering the school board and saying, "You need to try this. You need to try this. You need to try this." Finally she got the service in school for her son.

This technology is not all proprietary to Caption First. We're the best, but there are other companies who can provide these types of services, also. So talk with your service provider. They can probably help you out.

There was a question about a local community college that doesn't provide CART services. Local Community Colleges often don't want to provide the services. I'm going to stop short of saying "They have to" because there is such a fine line and we don't like to use that legal big stick to threaten people into providing services. However, if it is the accommodation that you need and they cannot provide you with any other accommodation, they really need to seriously look at providing the service for you. What you can do is provide them resources. Find the name of a person who provides the service. Show the college there are some options. Be solution oriented.

AUDIENCE MEMBER: I took the first step and told them that I am hard-of-hearing; They said that the professor will have an asterisk by my name that will indicate I have a hearing problem. I went to the first class last week and I told the instructor. He said, "Yes, I know." And I said, "What are you going to do to help me?" He said, "There is not very much I could do." I'm going to go back.

PHIL HYSSONG: Good.

AUDIENCE MEMBER: There may be a disability services coordinator at the college. Very often the instructor really doesn't have a clue. The other thing is PEPNet, Postsecondary Education Programs Network. It was developed through a consortium of four Regional Postsecondary Educational Centers for Individuals who are Deaf and Hard of Hearing.

We have a big community college right near my home and they don't have a specific person who is a disability services coordinator. But anybody can go to the PEPNet website. The idea is for a person to sit down and talk with you, create and print out a profile of what you need to communicate within a particular setting. Then the person

goes to another part of the website to the types of accommodations that will work for you. There are all kinds of external resources linked. It was developed by Dr. Greg Long at Northern Illinois University. If you know about that resource, you can tell someone at your college that very soon will be able to help you.

PHIL HYSSONG: Thank you. Here are two things to remember. One is to talk to your disability resource coordinator, whether that be in your workplace or in an educational setting. The second is to go to PEPNet website: www.PEPNet.org. They won't be able to provide you a lot of assistance necessarily in your workplace, but they will be able to provide you resources for the academic environment.

AUDIENCE MEMBER: George listens to us over the phone, right? Then he speaks by voice into a computer that displays the words here. Can you tell us what type of training he had?

PHIL HYSSONG: (Talking over the cell phone) George, are you able to do that? Can you share a bit about your training program? I'll verbalize it for you.

GEORGE: (George speaking to the group.) I trained for two to three years building my speed and accuracy. I then did a one-year internship interning for captioning. I just continued from there with practice and training.

PHIL HYSSONG: Thank you, George. He talked about 2 to 3 years building the speed and accuracy element that needs to be in place. It was still about a 2 to 3 year process to get him where he needs to be. The actual training program that was followed was a series of exercises put together by a Florida voice writing company. George participated in their training program. One of the nice elements of this training program is people are able to do it from home.

AUDIENCE MEMBER: I understand that George is talking by voice to the computer. What does George have to do to get the words in there? Does George have to train the software himself?

PHIL HYSSONG: That is correct. What is challenging about voice writing is that George needs to train the computer to recognize his voice. The computer comes basically with the algorithm that translates voice into words. Then you have to build in the intricacies. George might speak a long paragraph and then go back in and translate it. He might say, "When I say this phrase, this is what it means." Or, "This is how I say this word." He teaches the computer so the computer matches up.

In Pat's case, her computer matches steno strokes with words. George's program matches the voice segments with the words. So when the computer gets this frequency of sound, it translates into this word. And as he said, he has to be cautious of building speed and accuracy. Often when people speak quickly, their words flow together.

George has to learn how to speak accurately and still cleanly so that the computer can process it.

That's one of the major challenges. Another major challenge is listening or reading and speaking what you are listening to. It's not an easy task to revoice what somebody is saying.

AUDIENCE MEMBER: He is not speaking with the same inflection, either, is he? In other words, doesn't he have to speak in a different way? So that the person on the end could be all excited about all kinds of things, but he doesn't sound that way.

PHIL HYSSONG: He stays at a level tone. It improves the accuracy.

AUDIENCE MEMBER: Once I give this information to my employer and they schedule with you, arrange the bill and set up the account, approximately how much time is needed before a meeting in order to have the CART or the voice?

PHIL HYSSONG: The reality is, you can send me an e-mail and 99 percent of the time within five minutes I can provide services to you. We stop short of saying that we can provide on-demand services. But within our particular company, we are able to provide services pretty close to on-demand.

We prefer notice. If you could give us a couple hours notice or a days notice, that would be great. But if we got a phone call or you sent us an email, we can provide you the services that quickly. Caption First is now providing services 24-7, twenty-fours a day, seven days a week.

Thank you very much. I hope that this session was informative and enlightening for you, that we maybe cleared up a few of the myths. Have a wonderful day.

Philip Hyssong has an undergraduate and graduate degree in education and instructional design. For the past 19 years, Hyssong has focused efforts in the area of deaf education, accessibility and management issues. Presently he is vice president of marketing and administration for Caption First, Inc., a CART and captioning provider.