

# Communication Access Realtime Translation (CART) In the Classroom

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## Abstract

Effective communication access for non-signing Deaf, deafened, and hard of hearing students is an area of concern for postsecondary programs. This workshop provides information on using communication access realtime translation (CART) in the classroom for students with hearing loss. Information is provided on identification of qualified CART providers, use of transcripts, ethical/copyright considerations and software that may be used. The institution needs to develop a policy and process for selecting the best accommodation for students.

**Steve Larew:** This workshop will provide information about the use of Communication Access Realtime Translation or CART in the classroom. I will allow Pat and Gayl to do the talking about CART as they are experts in the area. I am here as a deafened adult to promote the need for more CART access in college classrooms. A large number of deaf people are not able to benefit from sign language interpreters or lipreading in classes.

We are here to explain CART. None of us has in-depth knowledge of C-Print, which is a new method of providing speech to text translation. My information comes from the recent satellite teleconference. It was explained that C-Print would provide 8 pages of notes compared to 20 pages in a CART transcript. My question is, what information is missing? I do not have the answer.

As a student, I would appreciate knowing I am able to read all the information and class discussion occurring with CART. However, when class is finished, it would be easier to read the C-

Print transcripts than the CART transcripts. I am sure it will become a question on economics when colleges and universities decide which method they will choose. There are pros and cons to both methods and the colleges and universities will have to make their decision based on what is best for the student.

**Gayl Hardeman:** I have been a court reporter since 1970 and became a CART provider in 1992. In 1993 at Boston University, the number of enrollees who wanted CART grew from one to eight in one summer. I had to create eight CART reporters from "court" reporters in one summer. These were already highly skilled court reporters, and in one day, to begin to build the non-court dictionary/database, they learned to enlarge text, to reformat their periods and question marks so that at the end of every sentence a new line would happen, so that there would be more white space on the page, and the page would be easier to read. The university provided textbooks for all classes to the reporters and hired me to implement a program of payment, quality checks, and appropriate scheduling.

In training CART reporters, we make sure that they have a certain speed so they can keep up with cross talk and with professors and students who often have accents. We train them to be able to paraphrase, which is totally against your training in court reporting; you are trained to get every single word. So you have to go against all your training to paraphrase and to include environmental sounds.

Pat and I both serve on the National Court Reporters Association (NCRA) task force.

CARTWheel has a website for education at [www.machineshorthand.com](http://www.machineshorthand.com).

We need to teach sensitivity, and we need to teach about the ADA laws, because we, like interpreters, become advocates for our clients, especially in classrooms where the professor doesn't have a clue what we do, or why we're here. In Massachusetts, the contract rate is a two-hour minimum and a half an hour of prep time. It is one hour of prep time, if it's a day-long event.

NCRA has offered many interactive teleconference and long distance seminars, one on CART. We got people's attention by recommending some ethical guidelines. There will be publication of a CART manual by NCRA this year.

Part of our training involves learning sign language. We teach sign language courses so that we can at least say 'how are you? My name is. . . . Can you read the screen okay?' We are trying to learn sign language. It is difficult, because many of us are not around people who sign. We are trying to develop a videotape on sign language for CART providers.

We need everybody we have—C-Print, real-time captioners, and interpreters, to work as a team to meet the needs of the students. I have often wondered as I'm writing this art history for one person, why am I not showing everybody this? It seems like such a waste. I know there were many foreign speaking students struggling with English who could have been helped by seeing the words.

Regarding software, it's called Live Note or Case View. Case View is less expensive. Case View is available from Stenograph Corporation. They have a dot.com. See what I mean about our language? Case View costs about \$175, and is installed on the user's computer. If your student takes his or her computer to class, the CART provider can output to the student. The student can have the CART coming in on his screen. As he reads something important, he hits the space bar. The space bar highlights the text. Rather than write down anything, he hits the space bar. At the end of the lecture, you can call for a printout of the marked passages. You have had the benefit of all the text coming through but at the end you have made the notes. You may have a page and a half or two-pages to take home with you. I think it's an excellent investment.

With a splitting box, a CART provider can output to a deaf student, to Case View, and to the

screen for everybody else. For \$175 you receive five applications. We have a splitter box and it can go up to five students at the same time. They can make their individual marks. You can hit control n and type in a note or type in a question for a non-speaking deaf person. The CART reporter or another student can read and voice for the student. Live Note is another program but it is expensive.

To reduce the number of pages in a CART provider's text file, a transcript can be delivered via e-transcript, which creates a self-executable, searchable file and allows printing of condensed text (4 pages per page). E-transcript, produced by PubNetics, is found at <[www.RealLegal.com](http://www.RealLegal.com)>. The program costs about \$700. Anyone can use it to reduce the number of pages one must print.

**Pat Graves:** This is a strange role for me because I am used to sitting behind the machine. I was a court reporter for 14 years and worked in several different states. I got tired of working with attorneys who were fighting with one another. I took the challenge and switched from court reporting to CART providing. I am one of the few people who provide only CART.

I want to start by defining some terms. Everyone uses "captioning" for everything. No matter what we do, people call us captioners. **CART** is communication access with a full screen of text. **Captioning** means you have an image of the speaker with text at the bottom of the screen.

**Post-production captions** are the captions that you see on videotape. Those are done after the tape has been created. The captions are placed all over the screen where the least amount of action is shown.

**Realtime captions** are done live. Post-production captions are made after the fact.

**Closed captions** are hidden captions. You turn on your TV and you have the image of the speaker and the captions are underneath it. **Open captions** are there for everyone to see.

Finally, CART providers are not typing! People always say, you type so fast. I'm actually a terrible typist- 80 words a minute with about 49 errors! We are writing using machine shorthand.

I was fortunate to serve on the Illinois task force for CART. Our state rehabilitation agency list of CART providers consisted of four people. This task force was formed in 1997. We provided training in Illinois for court reporting students and court reporters interested in CART. We called

this a sensitivity training. People can develop their skills, but they need to understand whom they are serving. We are serving people with hearing loss, so we become their ears like interpreters do. We talked about assistive listening devices. We had interpreters for the sessions, and we asked them to come out of their role and discuss ethics and professionalism.

We also had a panel of consumers who told of their life before and after CART. Most of the consumers were deafened. The change in their life from hearing to not hearing, between having CART and not having CART, is drastic.

The next part of our training was ethics and equipment. We have a state code of ethics and we are trying to develop a national code of ethics. In an organization where we are all ethical, the members have different guidelines. CART ethics mirror the code of ethics for interpreters. The ethics include confidentiality, professionalism, and staying in your role.

The last part of the training was advanced skill training. People attended this training and they were still scared to do CART. Why? We spill our guts. It is obvious when we are having a bad day and reporters don't want to do it. We offered advanced hands-on training to make them more comfortable. Bring your machine, hook it up to the overhead. See how it feels, play with your colors, check your fonts, etc. After this training, the list in Illinois has grown to 15 CART providers. In your states, you may want to approach the court reporting association and inquire if they have provided CART training. If not, encourage them to do it.

The question is: can we take court reporters who haven't passed the state and national tests and put them into the CART setting? That is an ethical question. This is the world according to Pat Graves. There needs to be a baseline and the baseline we have chosen is the state and national certification. Our task force said all providers have to have passed the state certification.

I am not sure what is done across the country. There are pockets of CART providers providing the service and we have made up our own rules. It is embarrassing to say but I have made up all my own rules. My rule is: I pay an hourly rate to the captioners that work for me. If they are certified, the rate is higher.

Texas has developed a test similar to what the interpreters have. They are evaluated with level one, two, three, four, five. I think it would be a

great thing to do in Illinois and nationally. Once we get past the ethics issues, our task force needs to address national certification

There are different tests and certifications. We have state tests which say you are qualified do court reporting. Not all 50 states have mandatory certification tests for court reporters. The state tests include testimony at 225 words a minute and the jury charge, which would be what the judge would say to the jury, at 200 words a minute. We have a category called literary or speeches. That is actually the hardest but the speed is the lowest, 180 words a minute. Those are the three parts of most state tests, and then written knowledge.

For people who live in a state that does not require certification, the National Court Reporters Association has the same tests, the same speeds, and same categories. You can get the state certification and/or the national certification. If you are a glutton for punishment, you can go for a higher speed and higher certification, and that's testimony at 260 words a minute.

Another test is the certified realtime reporter(CRR), which is literary and fluctuates between 180 and 200 words a minute at 96 percent accuracy. The difference is, for certification, you have one hour to transcribe five minutes of dictation. You can polish your notes and make the transcript perfect. When you take the realtime test, you write it and turn it in.

Our computers are friendly and tell us how many times a word appeared that it could not translate, or untranslated strokes. The computer comes up with a number, and that number, as a rule of thumb, should never be greater than 2% untranslated, or 98% accurate. The reality is you have to double, sometimes quadruple that number. Sometimes we have words that don't translate. Sometimes we have words that grab the word before it or behind it. We call them word boundary problems. It translates as English, but those are mistakes.

One example is the word Olympic. In reality it could come up Oh, limb, and pick, three syllables. That is three errors. My untranslated rate generally is .2. That is 99.8 percent translated. If I look at all the mistranslates, I would probably be around 99.2, maybe 99 percent.

I have recently developed what I call four corners of responsibility—School, Professor, Student, and CART provider. These are four areas related to providing CART in the classroom.

The first corner is the school, which is responsible for finding the right accommodation. It might be a notetaker, CART, or a sign language interpreter. You talk to the students and ask what they need. After determining the need for CART, you find a CART provider and demand quality. Ask for translation-error rate and demand quality services.

The school is the coordinator of the other three corners. The school needs to make sure we are talking to one another. The CART provider and the school need to work together to train the professors.

It is the student's job to go to school. We hope they attend class and realize the amount of work involved to put support services in place. There are guidelines the student needs to follow.

The students need to be aware of the coordination. With some universities, I was put into the role of tattling. The CART providers were driving two and a half hours to arrive in class on time. What I did was send a letter to the school, the students, and to the CART providers, explaining who is going to support you on Monday, Wednesday, and Friday. Here are the phone numbers. If you are not going to class, call us. For me, if I don't go, I wouldn't charge the school that day. I don't charge for the days that there are tests. That's bad business.

When I would send bills, there would not be an invoice for a day. If my CART provider showed up, they wouldn't stay the full-time. They might stay for a two-hour minimum, so the charge would be less. The school would call and ask, 'why did you not charge me?' Or 'why did you charge me less?' I would tell them that the student didn't go to class. They would become angry because the student never told them.

The professors are tough. Sometimes they take suggestions and sometimes they do not. I prefer to meet the professors before the class starts. For one school, I met the professors ahead of time, and it was great. For other schools, we walk in and the professor says "who are you?" It is disheartening because they don't know what we are about. With communication, barriers can be minimized.

I have done many math classes. The professors write on the board, turn their backs, talk to the blackboard, and say, 'you add this and this and you get that.' It is useless. What we want them to do is be a little more descriptive. When you

get into algorithms, that is more difficult because you have big N's and little n's and numbers to the Nth power.

Have you seen the cleaning carts used in the schools? I got a cleaning cart and put a camera on it with the encoder, which is what mixes the camera signal and the three lines of captions on the bottom. I would roll my cart into the classroom and put the camera onto the screen. The whole class was slides of anatomy. We had body slides the whole 90 minutes, and I would caption underneath it.

Another issue with professors is preparatory material. The books and the syllabus are important. The syllabus is passed out on the first day, but if CART providers could get the syllabus beforehand, it would be ideal. I do not build in a lot of prep time. I prepare, but I do it ahead of time. Every CART provider is different. It comes with experience.

The fourth corner is the CART provider. It is our responsibility to know what we are doing and to be able to go the Universities and say, "I can give you a well structured high quality service." That's in the ideal world. Hopefully there might be a meeting halfway if there is no training in your state. If a school has the knowledge, you can push that CART provider to provide quality services.

The school and CART provider need to talk to the professors ahead of time and tell them what is necessary. If communication fails and there is a breakdown, it is the CART provider's responsibility or the student's responsibility to say 'I didn't hear, say it again, I missed one sentence.' The training the professor needs in providing preparation materials and not turning his back and talking to the blackboard, is training that should be done by the school.

**Question:** Could you tell us how you would address the situation with someone who is afraid there would be a record?

**Pat Graves:** I think the written guidelines and contract are very important, so everyone knows what they can and cannot do. The first question is, who owns those words? Is it the University? Is it the professor? Is the professor willing to share those memorialized words with the students? I can't tell you the right answer, because every school has different policies. Some schools don't allow tape recording. I hate to throw it back at

you but in fact it is the school's policy, do they allow those words to be captured in a written form?

I worked at a dental school for one year that allowed disks to be placed in the library and every student could get a copy. It is a school mindset if you want to give those transcripts out or not. Putting the notes on the web for student access is another possibility.

Other issues need to be addressed in the contract or guidelines. What happens when the student is late or absent? How long does your interpreter or CART provider stay? Interpreters can leave quietly. CART providers can't leave gracefully. Personally, I have stayed the whole class because I cannot leave without disrupting. How late is late? I had one student who was late for every class. She could not get there. What I would do is give her a one-sentence summary. As soon as she walked in the room, I would start writing.

One school where I work has predominantly night classes. Everyone is working, and the school knows that people travel. Whether the student is there or not, I write it. Another concern is if you have two back-to-back classes, the student misses the first one but goes to the second class. If I leave after twenty minutes, am I supposed to stay for the second class? What do we do if there are four classes and the student only goes to the last one?

The next question is what do you do when a student sleeps? This is very tiring on their eyes. Do you kick them? Do you stop writing? Do you write and then give them the disk? These are issues that need to be put into this letter that the colleges write. I can't really tell you what the right answer is. One person suggested that the CART provider and the student work it out ahead of time. What do you want me to do when I see you are sleeping?

For those of you concerned with costs, I have developed a pricing formula. I am hoping this will help you. There have been some rules of thumb that say double the price of what an interpreter is paid, and that's what the CART provider earns. We work alone. When we go into court reporting, we never think of having a backup. Generally, I never think of having a backup when I do CART. I think that Boston has that policy. It is a new idea to me.

This is how I came up with my rate structure in Chicago. I asked court reporters to honestly clock their time for a couple weeks: What is your

average job and what are you paid for your appearance fee? What are you paid for your transcript? With transcripts, court reporters are paid per page. I asked them to average over a two-week period. If you do a two-hour deposition, generally it takes four hours to prepare the transcript. A court reporter will say I made a huge amount of money on a two-hour deposition. It wasn't a two-hour deposition; it was a six-hour ordeal. I asked my friends to average over two weeks, figure out how much money you made, and work it backwards. You take the time of production, divide it into the total amount of money earned, and you come up with your hourly rate.

This formula is good because hourly rates for court reporters and page rates vary around the country. This formula is portable. I'm in Chicago and the rates will be higher? If I were in rural Iowa, the rates would be lower.

**Question:** I'm from North Dakota, very rural with very few deaf students, and we have been working on remote captioning. Can you give us some suggestions? Our big issue right now is the eleven-second delay.

**Pat Graves:** I have not done classroom remote CART, but I have done corporate meetings. I will share my experience and see if we can translate it to the classroom. When using remote CART, the people attending are in one place sitting around a table. I listen on the speaker phone. On another phone line I send the words to the modem and they connect with the user's computer.

The speaker phones are terrible. It is hard to pick up the words. I have a device that grabs that phone signal and I feed it into an amplifier. I wear headphones to help understand the speakers. I think the way around it would be possibly people wearing microphones.

**Question:** I work in a K to 12 setting. We have seven middle-school- and high-school-aged deaf students who are late-deafened, don't know sign language, and can't use the interpreter. Do you have background on using it in the K-12 settings? The issue I deal with is administrators saying they can't read beyond third grade level, but we have kids that do read at 8th grade.

**Gayl Hardeman:** I know a parent who got CART for his 6th grade daughter. This year she made

the honor roll. It is used in K through 12 and they benefit greatly. I can't tell you at what level it starts being the most useful.

**Question:** If the University buys the equipment and hires different captionists, can they work off the same software and use the same dictionaries?

**Gayl Hardeman:** If they have the dictionary in the same software, yes. You can use the same laptop and then change to a different user in that program. We are constantly building dictionaries. Mine is 90,000 words.

**Question:** Repetitive motion injury for interpreters is sky high as the number of postsecondary deaf and hard-of-hearing students enter the classroom. What is that issue like in your field?

**Gayl Hardeman:** Court reporting is easier on the hands and wrists than interpreting because our hands are down and the blood supply is down. The steno machine is better than the computer keyboard because there is some resistance. The repetitive motion is not as great if you are pushing something. I know that I have pain in my right wrist when I edit because I'm using the page down arrow and the mouse in the editing process. I have pain in my wrist and have to sleep with a wrist brace occasionally. Vitamin B6 is supposed to be excellent in the treatment of this problem.

It's not as high in court reporting. However, in realtime captioning and CART, it can be diffi-

cult if you don't have the right chair. I remember driving home after a three-hour lecture at Boston University where the lecture hall sloped down. I sat squished in one of those lecture hall chairs where the desk table flops up. I sat squished for three hours, and a short break. Driving home, I had a throbbing pain. The following week, I found a chair, brought it into the classroom and hid it behind the podium.

**Question:** My question is about literacy. How does a person train to be a CART provider, and to spell and write proper grammar? If we sponsor someone to become trained as a professional, what criteria should we consider?

**Gayl Hardeman:** The criteria should be ideal or excellent English background. We are wordsmithing here. We need to have a strong background in English and spelling. I had a court reporting school years ago with an admissions exam. It was basic punctuation, ten spelling words.

I had a consumer whose vocabulary was poor. She had interpreters and she was good at lipreading, but her vocabulary was poor. She is in a fine University, taking art history, and the vocabulary is intense. I substituted many words. I couldn't do that if I didn't possess that vocabulary. In CART reporting, we train on synonyms. Do you know some synonyms for thwart or predisposed, for example? How can we train someone to become a CART reporter if they don't have those English skills? You can't. They have to get the English skills first.