

# CART

## Communication Access Realtime Translation

### What is CART?

Communication Access Realtime Translation – (CART) – is the instant translation of the spoken word into English text performed by a CART reporter using a stenotype machine, notebook computer and realtime software. The text is then displayed on a computer monitor or other display device for the student who is deaf or hard of hearing to read. This technology is primarily used by people with hearing loss, but it also has been used by people with learning disabilities or those who are learning English as a second language.

### How does CART work?

CART reporters write in a phonetic language, called STENO. Using the stenotype keyboard's 22 keys and a number bar, they learn unique combinations of letters to represent sounds or phonemes. The keyboard is chordal; therefore, multiple keys are pressed at the same time, much like playing chords on a piano, to represent certain phonemes. When an outline is written on the keyboard, it passes via cable to a computer for processing. This processing can be referred to as "translation" because it takes the phonetic outlines written by the reporter and translates them into English words using a special dictionary created by the reporter. This dictionary contains word parts, whole words, phrases, names, punctuation, and special entries used by the reporter during a realtime session.

### What special equipment is needed ?

Most CART reporters already own their own hardware and software for realtime display. Their hardware includes a personal computer that is at least a Pentium notebook computer with a 120 Mb hard disk drive, 8 Mb RAM, and 2 serial ports. Some CART reporters also purchase an optional external VGA or SVGA color monitor, which enables the student that they are assisting to see the screen better.

Other parts of their hardware include a realtime cable that connects the computer-assisted shorthand machine to the laptop computer. The reporter will also need to purchase a printer that can either be a letter quality dot-matrix printer or a bubble ink-jet printer. The reporter must also purchase a computer-assisted shorthand machine, realtime translation software, and software that enlarges their text for the student that they are assisting. The CART reporter will rely on the college to provide any overhead projectors, screens, video hookups, large format displays, or other equipment that may be requested to meet specific classroom needs.

### How much does the CART service cost?

Compensation for CART reporters working with students who are deaf and hard of hearing varies considerably, based on training and experience. The National Court Reporters Foundation suggests \$40-\$75 per class hour, \$15-\$40 per hour for preparation time (30 minutes for each class hour), and \$15-\$40 per hour for production time (editing and distribution). Colleges with little or no experience using CART reporters may wish to check with other colleges that have hired CART reporters.

### Ideas for faculty working with CART

Here are some strategies for faculty members using CART reporters:

1. Meet with the CART reporter before the first class and give the reporter a course syllabus, textbook for the class, handouts, outlines, readings, overheads, and vocabulary lists that will be useful for the CART reporter to use to prepare for class. The specialized vocabulary for the class will be entered into the reporter's dictionary, which will help to maintain a high translation rate. This is advantageous for both the reporter and the student(s).

2. Introduce the CART reporter and the CART service at the beginning of the first class. Show your support of the service. Tell students that the CART reporter has been assigned to one or more students for the term of the class.
3. Allow the CART reporter to explain briefly what realtime translation is, and invite interested students to look at the screen after class. Explain that, through the use of realtime translation, the reporter will write the teacher's and classroom participants' spoken words; the text of this lecture will display on a computer monitor or other display device in English for the student who is deaf or hard of hearing to read. Also, remind students that at the conclusion of each class, the reporter will provide the student with a copy of the lecture text from the realtime translation either in the format of an unedited ASCII file on a diskette or a printed copy of the edited text.
4. Permit the CART reporter to sit in a location that makes hearing you and the students in the class as easy as possible.
5. Make sure that the student being assisted is able to watch the screen and the speaker at the same time. Since the translation and text display are usually one to four seconds behind the speaker, it may take the student who is deaf or hard of hearing a few seconds longer to respond. Try to limit the class discussion to one person speaking at a time, so that all students have the opportunity to participate.
6. Restate or summarize students' comments if they are hard to hear, or somewhat disorganized. The CART reporter knows he or she must follow the

intent of the speaker at all times. The reporter will render as near a verbatim translation as possible, always conveying the content and spirit of the speaker. Sometimes, a new term is introduced that will not translate properly. The reporter may then use substitute language which is computer-translatable so that the term can be understood by the student.

7. The CART reporter may begin editing class notes during "down times" in the class. Decide whether hearing students will have access to these notes. Be sure your preference on this matter is well understood by the CART reporter, all the students – both hearing and deaf – and your department head or dean.

**Other features of the CART service:**

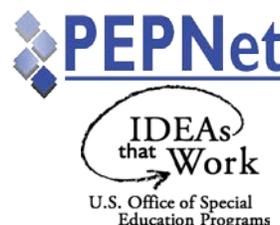
- The text on the screen will reflect everything going on in the environment, including environmental sounds and speaker identifiers. Examples include:  
INSTRUCTOR:  
MALE STUDENT:  
FEMALE STUDENT:  
(LAUGHTER)  
(APPLAUSE)  
(BELL RINGING)
- The CART reporter will work with the instructor and the student(s) in each class to ensure cooperation and quality of reporting.
- The CART reporter will always have a back-up reporter to take over the class in case of illness, and will inform the instructor of this change.

For more information, contact:

**PEPNet-Northeast**

**Rochester Institute of Technology**  
National Technical Institute for the Deaf  
52 Lomb Memorial Drive  
Rochester, NY 14623-5604

585-475-6433 (V/TTY)  
585-475-7660 (Fax)  
pepnetnortheast@pepnet.org  
www.pepnet.org



This *PEPNet Tipsheet* was compiled by Judy Larson, associate professor, Court and Conference Reporting Program, St. Louis Community College, St. Louis, Missouri.