

# **THE EVOLUTION OF VOICE WRITING EDUCATION IN THE UNITED STATES**

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## **Abstract:**

The advent of speech recognition technology has changed the educational process for voice writers. In addition to learning the mechanics of voice writing – to dictate quietly and quickly – computer technology basics and how to control the speech engine have become essential elements of the voice writing curriculum. As speech recognition software has evolved and improved, these programs have required more powerful computers and faster processors. Knowing how and when to upgrade computer components and perform proper maintenance of the computer hard drive are also integral parts of current voice writing education.

## **Key words:**

Computer, dictation, mask, speech engine, speech recognition, stenomask, voice writer

## **Introduction:**

Traditionally, voice writer education has consisted primarily of language skills (grammar, spelling, and punctuation), dictation technique, and transcript production. Today's speech recognition technology requires the addition of new dictation techniques and computer skills.

## **I. HISTORY OF U.S. REPORTING**

Until the late 19th century, pen stenography was the primary means of reporting in the United States. John Gregg created the most widely used pen-writing method of shorthand and opened a school in Chicago, Illinois. Miles Bartholomew's first steno type machine appeared during the Industrial Revolution of the late 1870s. Bartholomew's goal was to create records as quickly as possible by taking advantage of the ability to type faster than manually write. Use of this specialized typewriting machine superseded the pen, primarily due to the increased speed with which a court reporter could type.

During the 1940s, Horace Webb, a pen stenographer working as a court reporter in Chicago, imagined a faster way to make the record. He inserted a small microphone into a cigar box and, later, a coffee can, which contained a speech-silencing "tortuous path" to dampen reverberating sound waves, and connected it to a standard recorder. The "Stenomask" was very quiet and created a good voice recording. His goal was to create the record as quickly as possible and the concept was again very simple: take advantage of the ability to speak faster than type. Because the name "Stenomask" was copyrighted, the term "voice writer" began to be used, referring to anyone using voice to create the record.

Until the mid 1970s, when computers made their commercial debut, both stenotypists and voice writers made use of electronic tape recorders. Stenotype reporters dictated their notes and sent the tape recordings to professional typists for transcription. Voice writers simply dictated the proceedings while in the courtroom, with the confidence that their masks would prevent them from being heard. They would then send the tape recordings directly to typists for transcription, eliminating the extra step of reading stenotype notes into a microphone.

Widespread use of Computer Aided Transcription in the early to mid 1980s assured stenotypists that they no longer needed to dictate their notes or use the services of professional typists. In the late 1980s, the first realtime computer systems were finally able to translate stenotype into English as the information was being typed. Voice writers did not have the option of realtime until around the mid 1990s, with the introduction of speech recognition.

## **II. THE VOICE WRITING METHOD**

How is voice writing accomplished? For court and deposition reporting, voice writers utilize a "mask" (closed microphone), also called "speech silencer," a device which is placed on the face to obscure the sound as they repeat spoken words into an analog or digital recorder attached to the mask. Inside the mask are a microphone and sound-dampening materials. To produce a transcript, the voice writer listens to the *voice recording* as it is played back and types from that dictation on a standard keyboard. Today, the computer has replaced the cassette tape recorder, and the foot pedal can plug into a computer's USB or serial port. Thus, a voice writer requires only a laptop and mask to dictate and uses a laptop, headphones, and foot pedal to transcribe.

For broadcast captioning or remote realtime translation where the reporter's dictation will not be overheard, voice writers now use a headset microphone.

A realtime voice writer's words are transmitted through a microphone cable to an external USB processor, then into the computer's speech recognition engine for conversion into streaming text. The voice writer can send the streamed text to the Internet or to a computer file, to a television station for subtitling or into software which formats the results in a way most familiar to judges, attorneys, or subtitling consumers.

Voice writers have always enjoyed very high accuracy rates based upon pure physiology. This is an extension of the same "inner voice" repetition all humans use as they listen to a person speak or when they read a book. Voice writers simply switch this natural "inner voice" repetition mechanism to a physiological spoken voice. As a person speaks, their words travel through the voice writer's ear to the brain and are then repeated very quietly into the mask. Voice writers can achieve excellent performance for many continuous hours at speeds which exceed normal conversational speaking rates.

Voice writers produce the same products as their stenotype colleagues, including transcripts in all electronic and printed formats. Realtime voice writers connect their

laptops to captioning equipment and realtime viewer programs and can provide attorneys with computer files at the end of reporting sessions. Only the physical means of capturing speakers' words differentiates voice writing from other methods.

A voice writing system, consisting of a mask, an external sound digitizer, a laptop, speech recognition software, and computer-aided transcription or CAT software, is inexpensive. Typically, reporters purchase the most powerful computers available.

### **III. EDUCATION OF VOICE WRITERS IN THE U.S.**

Education for all court reporters, captioners, and providers of realtime translation, regardless of method, requires mastery of grammar, spelling, and punctuation. The skills track is where the educational methods diverge.

Voice writers were initially trained to report hearings for government agencies and military proceedings. As these court reporters transitioned to civilian life, they became employed in the U.S. legal system, established court reporting businesses, and began to recruit and train new reporters in the voice writing method. Established in 1967 by a group of former "closed-microphone" Coast Guard reporters, the National Verbatim Reporters Association (NVRA) began to provide educational seminars for mask reporters. By the early 1970s, NVRA had instituted a certification testing program for its members.

During the 1970s, a small number of stenomask schools were established for the private sector, primarily in the Southeastern United States, in addition to small individual classes taught by experienced mask reporters in other parts of the country. The U.S. Naval School of Justice continues to train military court reporters using the mask, and private, non-institutional voice writing programs are still available in many areas.

The curriculum of study for voice writers has typically included:

- Dictation and speedbuilding techniques
- Keyboarding skills
- Standard English grammar, spelling, punctuation, and word usage
- Procedures for research of technical terms and specialized vocabulary
- Procedures for reporting trials, depositions, hearings, and other kinds of proceedings
- Procedures to produce an accurate record of multi-voice testimony, jury charge, and colloquy
- Systems for production of transcripts and handling exhibits
- Professional ethics and responsibilities

The advent of speech recognition technology has changed the educational process for voice writers. In addition to learning the mechanics of voice writing – to dictate quietly and quickly – computer technology basics and how to control the speech engine have become essential elements of the voice writing curriculum. As speech recognition software has evolved and improved, these programs have required more powerful computers and faster processors. Knowing how and when to upgrade computer components and perform proper maintenance of the computer hard drive

are now also integral parts of current voice writing education. In addition to the knowledge, skills, and abilities listed above, the voice writing educational process now includes:

- Dictation techniques for speech recognition accuracy at speed
- Creation and maintenance of a voice model and vocabulary
- Brief forms and conflict resolution
- Improving and maintaining accuracy
- Editing techniques and keyboard shortcuts
- Computer setup and CAT software
- Computer maintenance

After mastering the mask dictation technique and building dictation speed, a voice writer can begin to effectively utilize speech recognition technology. The voice writer creates a voice model or "user" by performing general training of the speech engine. This is accomplished by reading literary selections so that the speech engine can begin to recognize the sounds made by an individual speaker.

Lists of words and phrases, proper names, and specific terms relating to medicine, industry, or other topics may be added to the existing general vocabulary. Many voice writers also create "brief forms" to represent certain words, phrases, or paragraphs of text, and the vocabulary contained in the speech engine must be customized to ensure that the voice writer's unique pronunciation is recognized and will produce the desired text translation. Voice writers also provide documents to be analyzed by the speech engine so that certain patterns of speech and vocabulary will be more accurately translated.

Consistent accurate translation depends upon maintenance of the speech engine's vocabulary, constant reinforcement of translation by correction of mistakes, and refining or retraining pronunciation.

Many voice writers, particularly those working within the U.S. legal system to provide transcripts of depositions and trials, as well as broadcast captioners, also utilize a specialized software program. These programs allow voice writers additional flexibility to manipulate the speech engine and provide formatting and transcript production functions specific to both judicial and captioning environments.

The development of technology has produced more opportunities for voice writer education. Vendors of speech engines as well as vendors of court reporting/captioning software provide training classes and workshops, and voice writing theory is now available in textbook form. Existing stenotype programs in colleges and universities across the United States are now adding voice writing to their curriculum.

In the past, the training process for a voice writer to learn the dictation method and achieve adequate skill to capture real-world testimony has been approximately three to six months in addition to academic requirements. Twenty-first century voice writing education now encompasses a slightly different model. Beginning voice writers are now introduced to the dictation method in relation to the computer and

speech engine. They learn to repeat accurately, dictate punctuation, build speed, create voice briefs, and correct translation errors as they occur. In addition to the 9 to 12-month academic courses, most voice writers can complete dictation and computer training within an additional 9 to 12 months.

Educational procedures for voice writers will continue to evolve to address our changing technology so that we may continue to produce the verbatim record as quickly and efficiently as possible.

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