

## Speed Building in the Morse Language

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Almost every time you listen to a VHF Repeater, you'll hear someone complaining that they can't learn the "Morse Code". This objection has been given as long as Ham Radio has been around! If you can read this article, and understand the spoken word you are already processing a more complex cognitive skill than is required to learn the Morse Language and be able to communicate in that language easily.

Many of the things we do in everyday life are treated as "taboos" or as "special skills". Often, the level of complexity to an action is associated with a euphemistic term. The use of euphemisms is common, for example, in the telephone industry. So-called insiders refer to the wires that connect your home or office to the telephone company as a "Local Loop". If you have trouble with that circuit you'll often be told that "Your Local Loop was interdicted, and we were able to restore it and your service". If you translate that statement into simple English, you would hear "The two wires between your telephone and our office were dug up by a back hoe and we had to splice the wires together so your phone would work again."

In some professions very complex terminology is used to "mystify" the outsider who either asks a question, or who reads about that profession. Morse Code is used as a euphemistic term, which to many people appears to be just another complex term about something they don't understand or are on the "outside" of the term. Part of the reason many people have difficulty in learning the Morse Code and then building speed is this ingrained resistance to a euphemism.

Let's begin by demystifying the myth "I can't learn the Morse Code". We can do this by identifying the Morse Code as a language. The Morse Language, when compared to English ... as to attributes is displayed in the table below:

Language Function	English	Morse
Characters	26 Letters 10 Numbers 15 Punctuation (Common)	26 Letters 10 Numbers 5 Punctuation ( , . ? / - )
Sounds	Complex	"dit" and "dah"
Words (Basic Skill)	5,000	41
Typical Reading Speed	300 WPM	20 WPM
Typical Speech/Sound	100-150 WPM	20 WPM
Typical printing speed	20-30 WPM	20-30 WPM
Typing Speed	110 WPM (Very Proficient)	50 WPM (Very Proficient)

Now, just how does this table help you learn? The English language requires that you have a command of at least 5,000 sounds to communicate. Typically a high school graduate has a usable vocabulary of 15,000 words (Wow! that seems hard to see the way some of the kids talk today!) and a college graduate has 25,000 words available for use.

Humans are most comfortable listening to speech at 125-150 WPM. There are several reasons for this, not the least is that requirement to call for less common words from your long-term memory. Using 15000 words and then acting on them requires that you pay more attention to the speech the faster it goes. In the early 1970's Nichols conducted extensive verbal skill studies and found that the human mind "wanders" when listening to human speech slower than 125 WPM - to the point that at 80 WPM a speaker's message may be totally lost on the speaker's listening office.

To overcome this Nichols recommended that Public Speakers try to talk clearly at 150 WPM. When this rate was followed, test audiences were able to retain information with a higher degree of recall immediately after the speech and 24 hours later as well. As a result of Nichols' work there are a number of commercial "phonic-based" reading and speaking skill programs available.

When you challenge someone to write down the speech you have a wide range of results, from 90% accuracy for a trained stenographer/court recorder to virtually unintelligible for the average person. In typing, as in Morse reception, words are counted as 5-letter equivalents. Here is an important difference. The statement: Hi, my name is John and I live in Dallas has a word count of 6 words and takes only two (2)seconds to say in English Speech at 120 WPM, however, takes about 30 seconds to send at 13 WPM Morse. Almost anyone can record this phrase in about 15 seconds of printing/writing ... which says you can test yourself to print over 20 WPM without any practice at all!

To be articulate in the Morse Language you need a command of 41 different words at a speed equivalent of 100 WPM Speech to pass the traditional Extra Class 20 WPM code examination. (Eliminated 2000) If this is the case, why do so many people have trouble doing it?

Concentration. That's it in one word. As we mentioned earlier, the research of the '70s indicated that the slower you had to listen to a speaker, the less likely you would remember what was said. From a technical standpoint the problem can be likened to a computer. In today's computer you have Random Access Memory (RAM) and Media Memory (Hard Disk, Floppy Disk, etc.). The computer "learns" something and keeps it in RAM until the program or the user decides to "save" that information to the Media Memory. Humans have two kinds of memory too ... our RAM is called "Short Term Memory" and our Hard Drive is called "Long Term Memory".

Both types of human memory are hundreds of times faster than the fastest computer. Even so, the input and output devices on the computer can take multiple tasks at the same time and provide intelligent output. While we humans have trouble discriminating between inputs ... we have a lot of "noise" on our internal computer buss, such as smells, light, sounds, tactile (touch) that are not the desired information. When you add to the mix the need to provide a useful "output" you do challenge the I/O capability of your mind.

If you could eliminate the senses you are not actively using during your attempts to learn, you could learn more faster, and retain it better. Whatever you learn in Short Term Memory has to eventually be moved by your CPU (Brain) to Long Term Memory, since, just as in computers, there is a limit to the amount of RAM available .... NO, you can't run down to the computer store and expand your human RAM! We'll have to work with what you have to start with!

So my methodology has been to work on reducing the amount of "noise" on your internal Bus, and allow the available STM (Short-Term-Memory) to be used to acquire information, catalog and move it to Long-Term-Memory (LTM) storage.

In 1975 I created a learning cassette that was sold by Long's Electronics and Tucker Electronics. Over 30,000 copies of the cassette were in circulation, and the new learning skill I introduced was the concept of sending the characters faster than the overall speed of the information, thus your characters were sent at 20 WPM with 5 WPM spacing. Although not original as an idea for code learning, it was the first time many people used the technique to gain speed.

There still remained a plateau that was hard to surmount - that 13 WPM hurdle! My research at the University of Texas (Dallas) into cognition led me to seek out alternatives to better isolate the STM from extraneous information. It was at this point that I expanded on Nichols ideas by devising a method to filter out the noises interfering with the cognition of speed in the Morse Language.

Most schools of thought indicate that people "count sounds" to tell what a character is as long as the Morse Language is only being handled by the STM. When the speed is s l o w enough, there isn't any reason to do otherwise! We all have used this method in our learning the alphabet and at very slow speeds. To obtain higher results at faster speeds, you can't "count". 13 WPM is 65 words per minute in the Morse Language ... each word is from one letter (e or t) to five letters (1,2,3,4,5,6,7,8,9 and 0) are rarely to six letters (, . / ? and - ) when reduced to the basic sound that the mind has to place into STM.

I found that the recording of information, which is called "transference" requires you to filter out some of the noise to accurately record the character. If we could complicate the recording the possibility exists that you could speed the pure learning of sound recognition.

Transference, then might make it easier to stop counting dits and dahs and begin to acquire the entire character sound as a single element to place into STM. When this happens, the STM information begins to move to LTM and is only called into STM when you are using the Morse Code actively.

I conducted a number of Field Trials during 1976-77 as part of my college research. Now that we've rooted around the material leading up to this research we can expound on the actual method. I have also found that you need to explain the preceding information to the "candidate" before the techniques will actually work.

1. The candidate must already know the Morse Code,
2. must want to copy/send Morse Code faster,
3. agree to a several week-long set of self-disciplined sessions, and
4. stick to the program!

Begin by asking a two questions (It's a good idea to make up a "form" and when you are done give the candidate a copy and keep a copy to check with candidate at the end of the program!):

At what Code Speed do you feel comfortable (Speed A) WPM.

What speed gives you trouble, however, you get most of the characters correct (80-90%) (Speed B) WPM.

Now, use these two speeds to "build the program":

First Week

Day 1: Set aside 30 minutes. For the first five (5) minutes set your Code Source (PC, Tape, Friend) to send at Speed A + 5 WPM DO NOT TRY to copy this, just listen to the sound. For the next five minutes set the code speed to Speed A and print the information circling each character as you write it down. For the next 5 minutes set to Speed B and write or print the information without doing any thing else. Repeat the sequence one time (Total 30 minutes)

Day 3, 5 do the same as Day 1. (Do not copy code for practice on Day 2, 4 or 6 of the week, you can operate - however - do not practice!)

Second Week

Day 1 (7th day of Week 1) For the first five (5) minutes set your Code Source (PC, Tape, Friend) to send at Speed A + 10 WPM DO NOT TRY to copy this, just listen to the sound. For the next five minutes set the code speed to Speed A and print the information circling each character as you write it down. For the next 5 minutes set to Speed B and write or print the information without doing any thing else. Repeat the sequence one time (Total 30 minutes)

Day 3, 5 do the same as Day 1. (Do not copy code for practice on Day 2, 4 or 6 of the week, you can operate - however - do not practice!)

Third Week

Day 1 (7th day of Week 2) For the first five (5) minutes set your Code Source (PC, Tape, Friend) to send at Speed A + 15 WPM DO NOT TRY to copy this, just listen to the sound. For the next five minutes set the code speed to Speed B and print the information circling each character as you write it down. For the next 5 minutes set to Speed A+7.5 and write or print the information without doing any thing else. Repeat the sequence one time (Total 30 minutes)

Day 3, 5 do the same as Day 1. (Do not copy code for practice on Day 2, 4 or 6 of the week, you can operate - however - do not practice!)

#### Fourth Week

Day 1 (7th day of Week 3) For the first five (5) minutes set your Code Source (PC, Tape, Friend) to send at Speed A + 20 WPM DO NOT TRY to copy this, just listen to the sound. For the next five minutes set the code speed to Speed A+10 and print the information circling each character as you write it down. For the next 5 minutes set to Speed B+5 and write or print the information without doing any thing else. Repeat the sequence one time (Total 30 minutes)

Day 3, 5 do the same as Day 1. (Do not copy code for practice on Day 2, 4 or 6 of the week, you can operate - however - do not practice!)

## Fifth Week

Day 1 (7th day of Week 4) For the first five (5) minutes set your Code Source (PC, Tape, Friend) to send at Speed A + 20 WPM DO NOT TRY to copy this, just listen to the sound. For the next five minutes set the code speed to Speed A+10 and print the information circling each character as you write it down. For the next 5 minutes set to Speed A+15 and write or print the information without doing any thing else. Repeat the sequence one time (Total 30 minutes)

Day 3, 5 do the same as Day 1. (Do not copy code for practice on Day 2, 4 or 6 of the week, you can operate - however - do not practice!)

End of Round 1 of program. If Speed A was 10 WPM and Speed B was 13-15 WPM you can now copy 20 WPM! To go faster, start at week one again setting you A speed to 20 and B to 15 WPM. It is best to leave a few days idle, as you promote transfer to LTM better by allowing the STM to "lapse" slightly.

By circling the letters you are keeping your mind busy, and the active filters work better and keeping the noise out of your memory!