JUST DON'T SCRAMBLE

THE WRONG EGG

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I cannot really tell you how delighted I am to be here at this First National Conference on Captioning and to be able to participate personally in the discussions that will follow during the next two or three days. Captioning for the deaf is still young, is still growing, and I think it is constantly being improved. We still have much to learn, and I hope we are never completely satisfied with our research or our end products. I simply hope we never stop learning.

This coming September will mark the 20th anniversary of Public Law 85-905, which established the Captioned Films for the Deaf program and the beginning of the art of captioning for the deaf. It is also considered the beginning of the use of instructional technology in the education of the deaf. The consequence of this legislation has been the design of educational materials to meet the unique learning needs of the deaf and a strong interest in exploring ways to either adapt or to develop new technology to assist in the efforts to more fully guarantee deaf persons their full rights in society. I would like to give you a review of past developments which quickly tell us how far we have come. In addition to a nationwide distribution system which makes captioned films available for deaf persons of all ages, there is an evaluation and selection system to determine which films, educational or theatrical, are annually added to the program; educators of the deaf have earned advanced degrees in instructional technology; a media center specifically concerned with the development of media and materials for the deaf is located at Lincoln, Nebraska; computer-assisted instruction programs for the deaf are being developed, field tested, and used at institutions like the National Technical Institute for the Deaf, the Model Secondary School for the Deaf, and at other programs around the country. An individualized language development program, originally intended for the deaf, is now on the market and serving other handicapped as well. And the broadcast field has been penetrated with a captioned news program which is broadcast five nights weekly over the PBS network. Incidentally, that program now reaches Pago Pago in American Samoa via satellite. The biggest breakthrough, I think, is the development of the closed-caption system, which permits a deaf person, through the use of a device attached to the television set, to view captioned television programs without disturbing the normal viewing audience. This has been a cooperative venture, funded by the Bureau of Education for the Handicapped and developed through the Public Broadcasting Service. More important is that this approach will make captioned TV a reality for deaf Americans. We are hopeful that a very modest beginning will be made as early as fall of 1979. Yet we have already begun to look beyond that. We are now funding some developmental work in what we call "real-time" captioning, which will eventually—I really hope sooner—make it possible to caption live programs.

Initially, little research was done on the effectiveness of captioning as a means of providing verbal information to deaf persons. It was simply assumed that captions were a valid alternative to the sound track. During the past several years, a number of persons have investigated the use of captions: Gates (1970), Fischer (1971), Nix (1971), Propp (1972), Davilla (1972), Nomeland (1973), and Norwood (1976). Generally speaking, the data shows that captions are a superior means of transmitting verbal information to deaf persons. Shroyer (1973) experimented with the reading rates and comprehension levels of deaf children using captioned educational films. If memory serves me correctly, 85% of the children using the films were able to greatly benefit from the captioned information. Credit for this must go to our teachers/writers who really proved that they knew what they were doing. I think it was also pretty good for a program that was lacking in any definite standards or guidelines. To be honest with you, it literally was a "fly by the seat of your pants" operation. Everything was based on what we knew the kids could do, not on any knowledge of films or technology per se. There was no research. I believe we were very cautious in those days, and if we proved anything, I think we proved Confucius was right!

"The cautious seldom err."

Initially, the captions were geared not to exceed a reading speed of 120 words a minute. This was done by devising a scale that allowed 18 frames of film for the first word in any caption and 12 frames for each subsequent word. I would like to show you that scale.

Table 1
Caption Scales
35 MM (16 frames to 1 foot)

Words	Children (120 wpm)	Adults (144 wpm)
1	1.2	1.0
2	1.14	1.10
3	2.10	2.4
4	3.6	2.14
5	4.2	3.8
6	4.14	4.2
7	5.10	4.12
8	6.6	5.6
9	7.2	6.0
10	7.14	6.10
11	8.10	7.4
12	9.6	7.14

Using that scale precisely, you would always get a 120 wpm rate. We used it as a rule of thumb. Consequently, the reading rate varied from a low of about 50 words a minute up to roughly about 130 words a minute, depending on several factors: the length of the scene, the grade level we had to deal with, and most important of all, the type of audience. For younger children, we would always try to slow it down, but the big problem in those early days was that we had continuities that gave us only the length of the scene. We always knew exactly how many feet or frames we had to work with, but we never really knew the exact location of the dialogue or the narration. I think there are

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a few people in this room who had that experience. Bob Panara is one of those pioneers. To give you an idea of the problem, just imagine that you had a scene that was maybe nine feet in length, maybe with four pieces of a dialogue and maybe a total of, say, 20 words. Now, if you wanted to be sure that you had a reasonable reading rate and you checked the scale, you knew you would have to eliminate at least eight of those words. By doing so, you would allow a reasonable reading rate and enough time for the deaf person to read and see the scene. But keep in mind that as a writer you had to try to locate the precise place to put the caption as well as to determine how much time to give each of those captions, so that in a very limited time the deaf person would have sufficient time to read each caption, see the whole scene, and so forth. Remember, the exact location of the dialogue was unknown. To overcome this, we worked each scene backwards. We did not always hit the mark, but I think most of the time we did. Since that time, we learned to develop a spotting list, which is the measurement of the film from the beginning to the end; it allows us to pinpoint the exact location of every piece of dialogue or narration. With those measurements and using the scale, a writer then knew the exact location of every piece of narration or dialogue. But, more importantly, he knew precisely how many frames of film would be used for the caption. Consequently, the caption can be written now to meet the needs of any audience for whom the film is intended.

25	222.2	230.2	8.0	Lumber trucks haul the logs to the sawmill.
26	245.8	253.8	8.0	A crane pushes the logs off the truck into the mill pond.
27	273.12	279.12	6.0	The logs enter the mill on a spiked conveyer belt which . . .
28*	279.13	285.18	5.11	. . . carries them up a chute. They are sprayed with . . .
29	285.12	291.12	6.0	. . .water to remove grit and dirt that might. . .
30*	291.13	298.12	6.15	. . .dull the sharp teeth of the saws.

Figure 1. Spotting list for scripting educational films

During those days, there was still another problem. This problem was peculiar to educational films. Since captions were edited and the sound track was not, some teachers who could hear found the difference to be annoying. They listened to the sound track and did not read the captions. We also found that kids who had sufficient residual hearing had problems, too. The captions were probably reinforcing lip-reading as well as helping kids to understand the speech. I do not know of any specific research on this, but I do know that when a feature film is shown and it has captions, my ability to lip-read improves 1000 percent. To overcome this problem, we started what we call syncapping, that is, we began to redo the sound tracks to match the captions. This gradually not only solved the problem, but we began to receive compliments from our teacher critics, who praised us on our ability to caption films verbatim. I will not go into particular details of the development of study guides and the distribution system and other things that are happening, because I feel most of this information will come to you in the various sessions you will be attending.

I would like, however, to discuss one important consideration for anyone who is involved in captioning. This is the fact that we are dealing with a method of providing verbal information via visual rather than audio means. In other words, we are dealing with reading levels, not listening levels. Let me see if I can get

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this across. There are four different steps to comprehension. I want to point out the bottom step first. You see that it is called a basal or an independent level, and this deals specifically with reading.

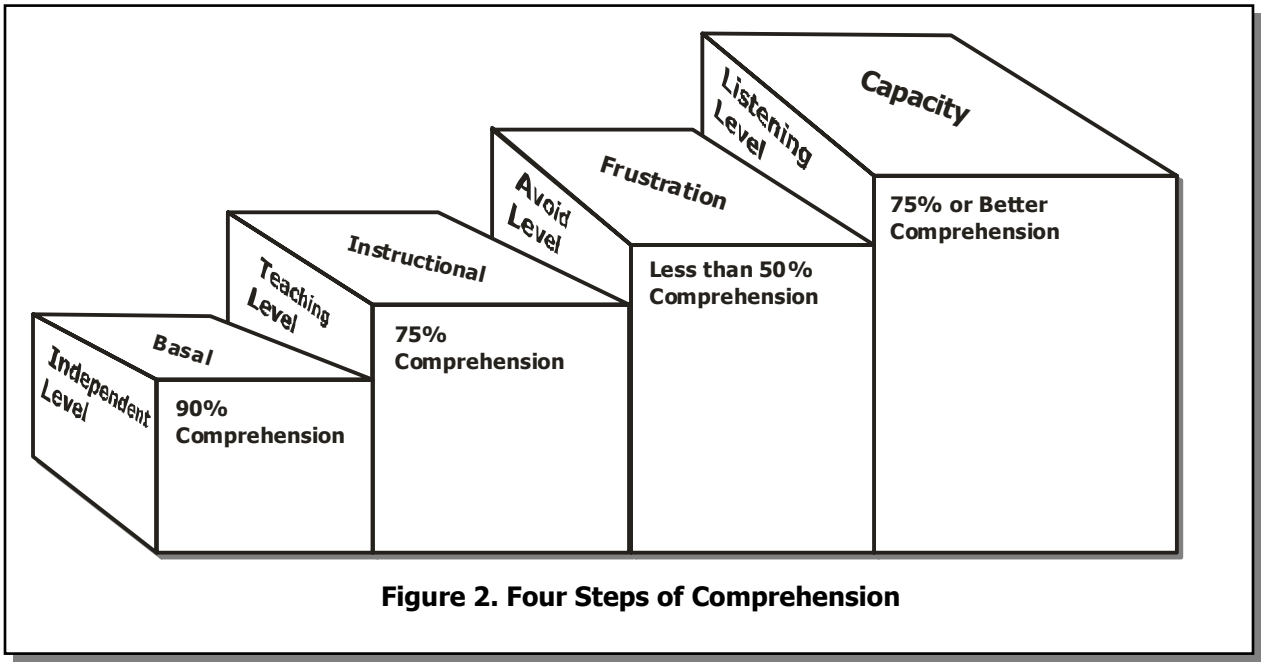

Figure 2. Four Steps of Comprehension

Note that in order to read independently, you must have 90% comprehension. If you do not have that 90%, you cannot actually understand all that you are reading. You cannot do it independently. If the comprehension level drops to roughly about 75%, you are now on what is called the instructional level or teaching level. This is the level which children use in schools if they are being taught reading. They must have at least 75% comprehension. If you drop below that, particularly if you come down to 50% or less, I call that the avoid level; you become frustrated. It is impossible for anyone to read if they understand only 50% or less, or maybe even 60%. Now the top is what is called the capacity level. And I think this is what we need to understand most of all. It is also called the listening level. If you are reading to a person or you are speaking to a person, and that person can understand without too much of a problem he will get along fine. The point I really want to make now is that most of the educational films and other programs are really aimed at the capacity level of the hearing person. In other words, you could have a child—and let me take an instructional film, for example—who was actually reading, let us say, at the fourth-grade level. The film that is being used for fourth-grade instruction may have a capacity level, a listening level, as high as eighth or ninth grade. If you were to convert that sound track into print, that child would not be able to comprehend it. He can if he listens, but he cannot if he has to read. And the point I really feel I need to get across today is that anyone who is involved in captioning needs to understand that with a deaf audience, we are not dealing with the capacity level, we are dealing with a reading level. We are dealing with the ability of a deaf person to get his information from reading. And we must keep in mind that there is a vast difference between listening and trying to get your information from reading. So anyone who is involved in captioning for the deaf needs to keep not only the independent and instructional levels in mind but reading speed and other factors, as well. I have seen statistics or statements that say the average deaf person in this country reads at fourth- or fifth-grade level. I think you need to stop to think about your audience when you caption a program. Basically, you need to keep in mind that we are dealing with a different receptive mode for verbal information.

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I would like to close now with one of my favorite stories. This is the one when a wife came in one morning to wake up her husband, and he was in a very ugly mood. No matter what she said to him, he would snap at her. She did not seem to be able to satisfy him. Finally, in exasperation, she said to him, “Look! All I want to do is find out how you want your breakfast!” He looked at her, snapped, and said, “Fry me one egg and scramble the other!” Later when he sat down at the breakfast table, he looked at his plate and said, “Damn you, you scrambled the wrong one!” The only point I want to make here is that I think this conference is giving us a wonderful opportunity to do more in captioning, to develop philosophy, and to decide the way we will go. Just don’t scramble any wrong eggs. Thank you.

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